

Dr. Sterling M. McMurrin

The American School Board Journal

A Periodical of School Administration

March 1961

*One Book Is Not Enough, Rickards
and Hines 14*

*Automation in School Accounting,
Saathoff 17*

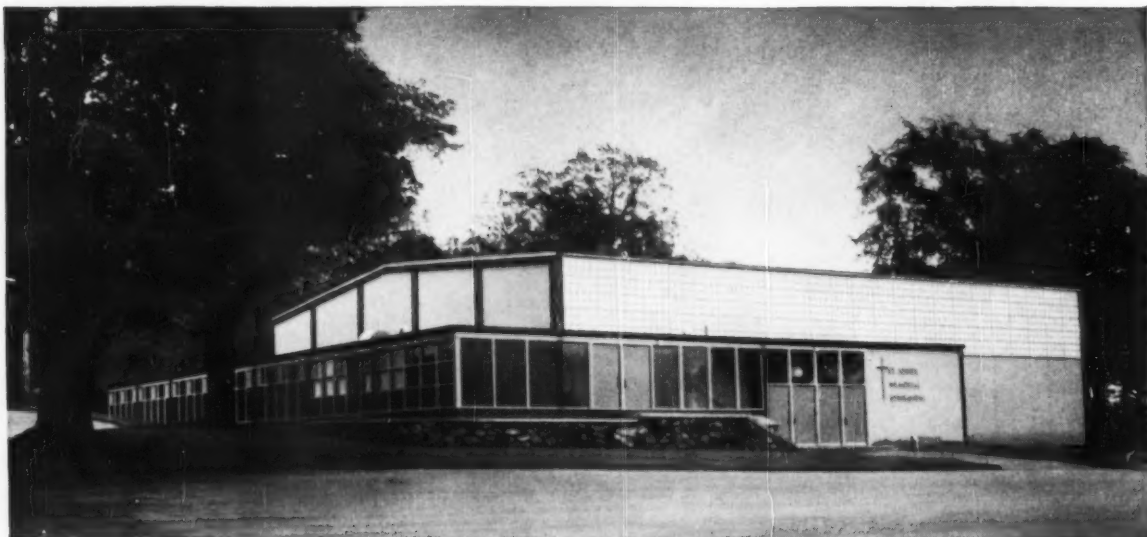
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*Blending the Old With the New:
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St. John's Memorial Gymnasium, Clinton, Mass. Architect: Hajian & Malkasian Associates, Boston, Mass.

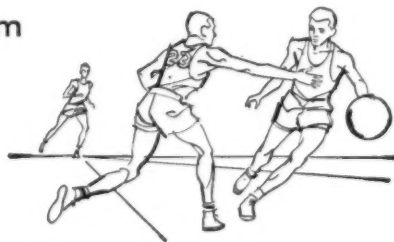
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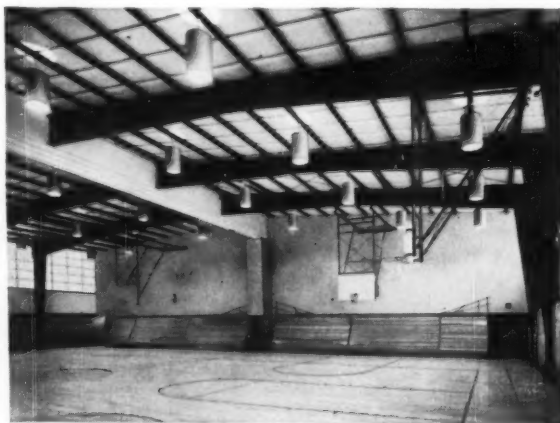
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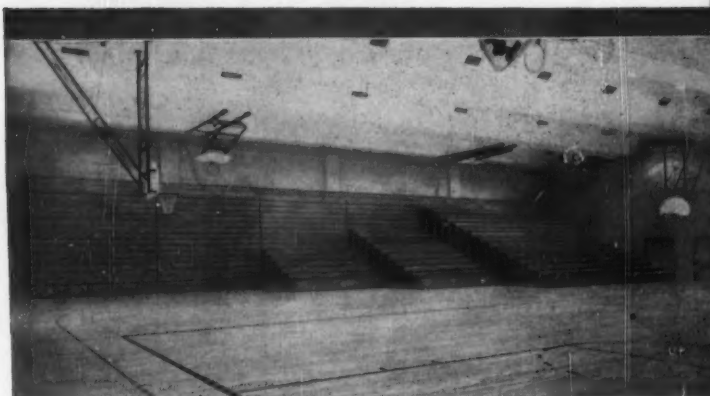
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March, 1961

Vol. 142 No. 3

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The American School Board Journal

THE EDITORIAL STAND

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OUR COVER

Photos of the interior court at Centennial Junior High School, which is featured on page 20, and the newly-appointed Commissioner of Education, Dr. Sterling M. McMurrin.

How Imaginative Engineering Provided Air Conditioning To Fit A School Budget

Must school air conditioning always be "too expensive"? Perkins & Will, Chicago architects and engineers, didn't think so last year when they designed suburban Homewood-Flossmoor High School. Without exceeding the school budget, they provided an air conditioned area large enough for complete summer sessions, including 15 classrooms, the library and all administrative offices. Actually, cooling for 25,000 square feet added less than 3½% to normal building cost — less than \$4 per square foot of cooled area.



Homewood-Flossmoor High School, Flossmoor, Illinois. Air conditioned section (center) connects to other school facilities by glass-enclosed passageways.

Architects and Engineers: PERKINS & WILL, CHICAGO

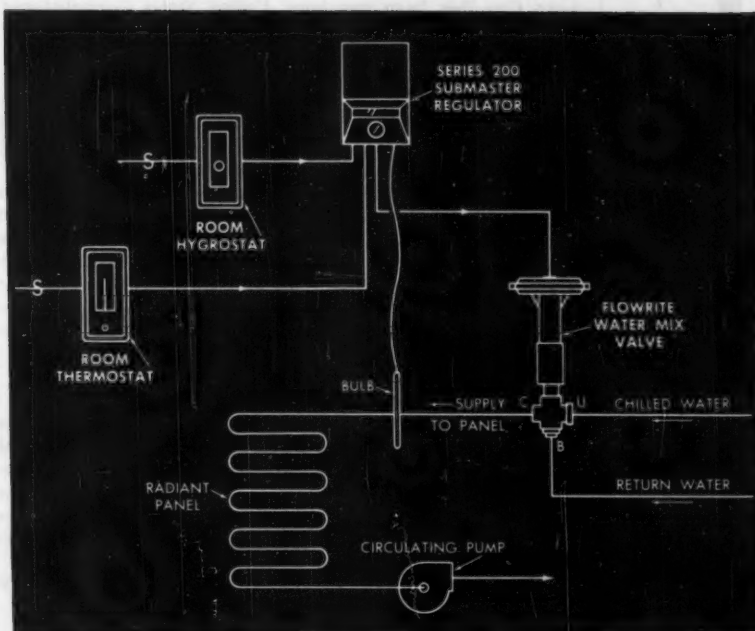
Mechanical Contractor: THE ECONOMY PLUMBING AND HEATING CO. OF CHICAGO.



Perkins & Will team of architects and engineers works out details of the cooling system design features and controls for the Homewood-Flossmoor school. From left to right are F. Philip Brotherton, Designer and Project Architect; Rudolph J. Houkal, Chief Mechanical Engineer, and Edward C. Colin, Chief Structural Engineer.

How it was done

Perkins & Will grouped all rooms where both heating and cooling were desired into one section of the school. An interesting design feature is the core of 15 classrooms, surrounded on all sides by other rooms. The fuel savings realized from this "insulated" core help defray the added expense of cooling the entire summer school section. The engineers concentrated all mechanical service equipment beneath this section to eliminate long air conditioning channels. Double ducts and automatic controls were carefully designed for easy switchover to cooling and to take full advantage of tempered return air and outside air during spring and fall seasons.

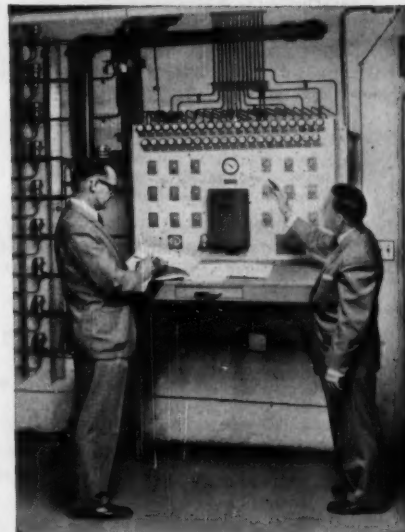


Ceiling Panel Condensation Control

To back up the mechanical efficiency it so carefully designed into the heating, cooling and ventilating system, the Perkins & Will firm specified a Powers system of pneumatic temperature control, including the important dew point control which acts on the chilled water auxiliary cooling used in rooms exposed to the outside. This control (see diagram) utilizes a Powers Water Mix Valve on the ceiling panel chilled water supply and a low limit Submaster Regulator. The Powers Hygrostat measures room humidity conditions and resets the low limit temperature to prevent condensation on panel surfaces, yet allows supply water temperature to be as low as possible for maximum cooling.

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*Homewood-Flossmoor
Maintenance Superintendent
William C. Drews (left),
takes readings from the
automatic Powers pneumatic
control panel.*



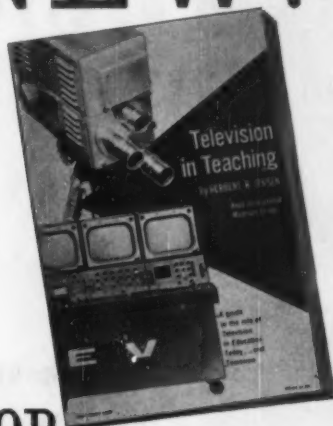
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the school scene

■ Dr. Sterling M. McMurrin, vice-president of the University of Utah, Salt Lake City, has been appointed United States Commissioner of Education. He succeeds Lawrence G. Derthick.

The new commissioner of education served as visiting scholar at Union Theological Seminary, assistant professor of philosophy at the University of Southern California, and has held fellowships at Columbia and Princeton universities. In addition to his administrative duties, Dr. McMurrin has served as professor of philosophy at the University of Utah since 1948. He served six years as dean of the college of letters and science.

■ In order to co-ordinate the efforts of professional and trade associations in the media fields (films, television, books) in the interests of better service to American education, 13 national organizations recently joined forces to form the Educational Media Council. Dr. Charles F. Schuller, director of the Audio-Visual Center and professor of education at Michigan State University, was elected council chairman. The council will serve as a forum for the discussion of problems relating to educational media, undertake action programs, engage in research, sponsor conferences and seminars, and disseminate information about instructional materials.

■ The executive committee of the Governor's Conference recently approved a proposal by Gov. Michael V. Disalle of Ohio to let states have part of the money collected for Federal income taxes to spend on schools. Disalle's resolution calls for the Federal Government to return to any state 5 per cent of the Federal income tax collected there. The state, in return, would be required to spend 40 per cent of that money for operating and construction costs of schools. Gradually, over a period of from 5 to 10 years, it would become mandatory for the state to spend all of the money on schools.

■ Three studies, instituted by the retired Secretary of Welfare Arthur S. Flemming over a year ago, were made public just as the new administration was taking over. The studies concern teachers' salaries, school construction, proposals for staffing colleges and universities, and a report on vocational education.

The ex-secretary warned that this country will have to make a "far greater investment in the field of education than the nation has been willing to recognize" to meet its basic educational needs during the next decade.

■ The number of pupils in secondary schools—grades seven through twelve—reached an all-time high in the school year 1958-59. A report recently issued by the U. S. Office of Education shows that the number of public secondary school students in 1958-59 reached 11,044,119 in 24,187 schools in the states and the District of Columbia. This compares with 7,688,919 pupils in 23,746 schools in 1951-52.

The total number of secondary school teachers, it was revealed, rose to 485,569 in 1958-59, compared with 332,106 in 1951-52. The number of pupils graduating from high school climbed sharply to 1,324,553. The 1951-52 figure was 1,045,588.

■ On January 30, 1961, the Midwest Program on Airborne Television Instruction, Lafayette, Ind., began its demonstration period of telecasts. In this initial phase of the experiment, 14 series of telecasts will be transmitted from an equipped airplane on a regular weekly schedule until May, 1961. Of the 14 series offered, eight are on the elementary level, four are designed for high school use, and two are on the college level. A broadcast schedule for the demonstration period and a number of resource publications have been made available as supplementary materials to the televised offering.

■ During the month of January, 1961, school bonds in the sum of \$167,668,562 were sold. The largest sales were: California, \$26,183,000; Minnesota, \$11,940,000; New York, \$29,308,000; Ohio, \$12,781,000; Illinois, \$9,576,000; Virginia, \$9,500,000. The average yield of 20 bonds was 3.38 per cent.

■ Harold V. Webb has been appointed acting executive director of the National School Boards Association, according to a recent announcement by Roy O Frantz of Pueblo, Colo., the association's president.



The appointment follows the registration of W. A. Shannon as executive director of the NSBA. Dr. Webb joined the executive staff of NSBA on July 1, 1958, to undertake special responsibilities for the organization's field services and for convention exhibits management. He was named associate executive director of the association in 1959. He has been a teacher, principal, and superintendent in Kansas schools and has taught at the University of Wyoming.

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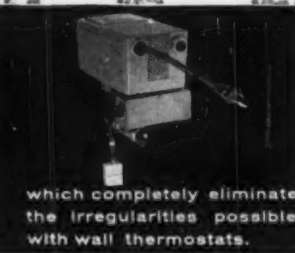
Modern schools have



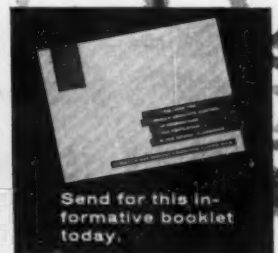
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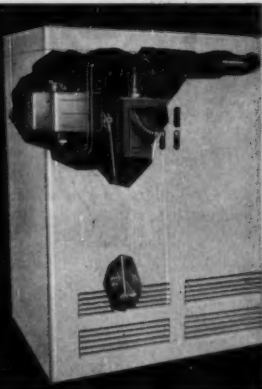
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Why Written School Board Policies Are Important

JIMMY MAGOULAS

An educator outlines ten important reasons why school board members should formulate and adopt written school board policies in lieu of "customary policies" or the record of board actions.

The formation of school board policies according to the laws of the state and the educational needs of the students and of the community is a definite function of the school board. This responsibility is constantly undertaken day after day throughout the United States. In fact, policy formulation has been exercised by school boards for many years. Unfortunately, many good policies have "fallen along the way" or have been "relegated to the ash heap of antiquity" because the board has not adopted written statements of policy. Instead, many school boards in Virginia and other states have continued to operate through "customary policies," that is, by merely recording in the minutes of board meetings the actions of the board, these actions considered to be board policy. The trend today is away from this concept to that of compiling, writing, and publicizing the policies of the school board.

To ascertain the importance of written policies, a five-point rating scale was developed. The rating classifications were (1) strongly agree, (2) agree, (3) undecided, (4) disagree, and (5) strongly disagree. The items to be rated were based on a review of the literature on written policies. It was found from the literature that written school board policy:

1. **Avoids Oversights.** The board is able to provide for many kinds of situations in advance of their happening.
2. **Saves Time.** Written policy permits expeditious handling of school business. Matters which formerly re-

quired board action can be handled by the superintendent who reports his action to the board, thereby releasing the board from numerous small details.

3. **Reduces Pressure.** Written policy reduces demands made on the school by pressure groups because the demands are dealt with by clear definitions of policy rather than by dealing with each as an emergency issue.

4. **Defines Work.** A superintendent and his staff are able to perform their duties in a businesslike way with a minimum of conflict, misunderstanding and friction because clear definitions of job performance makes for efficient operation.

5. **Improves Relations.** Written policy can help laymen understand when, where, and how they can participate in the improvement of public education.

6. **Provides Continuity.** Written policy provides new board members and superintendents with a summary of how the board has proceeded in the past, its present policies, and direction for future policy.

7. **Improves Instruction.** Written policy can clarify the principle of academic freedom for teachers, thereby helping to minimize fear and uncertainty concerning controversial issues in the community.

8. **Facilitates Orientation.** Written policy facilitates orientation of new and/or inexperienced personnel by informing them of their duties, responsibilities, and authority and by serving as an aid to supplement the inservice training of personnel.

9. **Aids Evaluation.** Board members and the superintendent are provided with a comprehensive and economical aid for constantly evaluating and improving the work of the schools.



Dr. Magoulas is principal of Churchland Junior High School, Churchland, Va.

Written school board policies "should incorporate the best administrative policies of the local school system. . . . They should be a sort of administrative constitution for the school system."

— Reeder

10. **Promotes Morale.** Written policy can clarify vague lines of responsibility which often lead to professional conflicts among staff members as they perform their duties.

Rating Participants

Persons participating in the rating of the importance of written school board policies included (1) 92, or 71.3 per cent, of all board chairmen in Virginia, (2) 106, or 92.2 per cent, of all division superintendents in Virginia, and (3) a selected jury of 56 persons. The jury included 17 college professors, eight executive secretaries of state school boards associations, seven presidents of state school boards associations, four past presidents of the National School Boards Association, 11 superintendents of schools, and nine persons representing various educational positions. Members of the jury were selected on the basis of (1) experience and position in the field of school administration, and/or (2) direct knowledge of the importance of written policies by virtue of working in a school system with written statements of policy.

Summary of Ratings

The ratings by board chairmen and superintendents in Virginia compared with authoritative findings on the importance of written policies are as follows:

1. Board chairmen and superintendents in Virginia agreed that written policies enable the board to provide for many kinds of situations in advance of their happening. Only four board chairmen and five superintendents disagreed. The jury members unanimously agreed with the statement.

2. Board chairmen and superintendents in Virginia agreed that written policies permit expeditious handling of school business because matters which formerly required board action can be handled by the superintendent who reports his action to the board, thereby releasing the board from numerous small details. Only three board chairmen

and five superintendents disagreed. The jury members unanimously agreed with the statement.

3. Board chairmen and superintendents in Virginia agreed that written policies reduce demands made on the school by pressure groups because the demands are dealt with by clear definitions of policy rather than by dealing with each as an emergency issue. Ten board chairmen and five superintendents disagreed. Fifty-four of the 56 jury members agreed with the statement; two were undecided.

4. Board chairmen and superintendents in Virginia agreed that written policies make it possible for a superintendent and his staff to perform their duties in a businesslike way with a minimum of conflict, misunderstanding, and friction because clear definitions of job performance make for efficient operation. Only two board chairmen and three superintendents disagreed. Fifty-five of the 56 members of the jury agreed with the statement, one being undecided.

5. Board chairmen and superintendents in Virginia agreed that written policies can help laymen understand when, where and how they can participate in the improvement of public education. Only four board chairmen and five superintendents disagreed. Fifty-three jury members agreed with the statement; one was undecided and two disagreed.

6. Board chairmen and superintendents in Virginia agreed that written policies provide new board members and superintendents with a summary of how the board has proceeded in the past, its present policies, and direction for future policy. Only four board chairmen and three superintendents disagreed. The jury unanimously agreed with the statement.

7. Board chairmen and superintendents in Virginia agreed, but with some doubt, that written policies can clarify the principle of academic freedom for teachers, thereby helping to minimize fear and uncertainty concerning controversial issues in the community. Eleven board chairmen and superintendents disagreed; however, 53 board chairmen and superintendents were undecided as to the importance of this statement. Forty-four jury members

agreed with the statement, 10 being undecided and two disagreed.

8. Board chairmen and superintendents in Virginia agreed that written policies facilitate orientation of new and/or inexperienced personnel by informing them of their duties, responsibilities and authority and by serving as an aid to supplement the inservice training of personnel. Only three board chairmen and one superintendent disagreed. Fifty-four of the 56 jury experts agreed with the statement, two were undecided.

9. Board chairmen and superintendents in Virginia agreed, but with some doubt, that written policies can provide board members and the superintendent with a comprehensive and economical aid for constantly evaluating and improving the work of the schools. Eight board chairmen and seven superintendents disagreed; however, 52 board chairmen and superintendents were undecided as to the importance of this statement. Forty-six of the 56 jury panel agreed with the statement, seven were undecided and three disagreed.

10. Board chairmen and superintendents in Virginia agreed that written policies can clarify vague lines of responsibility which often lead to professional conflicts among staff members as they perform their duties. Only two board chairmen and five superintendents disagreed. Fifty-four of the 56 jury men agreed with the statement, two being undecided.

Comparison of Ratings

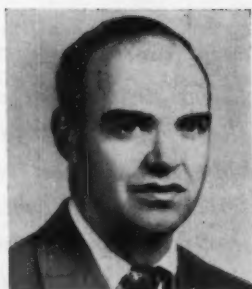
The ratings by board chairmen and superintendents of the importance of written school board policies were compared by using three statistical methods: (1) the degree of relationship expressed by the correlation coefficient, (2) the significance of the difference between the means of the ratings, and (3) chi-square formula for testing agreement in 10 specific areas. It was found statistically that (1) a positive correlation exists between the ratings by board chairmen and superintendents, (2) the ratings by board chairmen and superintendents do not differ significantly, and (3) the ratings by board chairmen do not differ from superintendents on each of the 10 specific areas.

A second article by Dr. Magoulas, which will appear in your April issue of THE AMERICAN SCHOOL BOARD JOURNAL, will consider the contents for a school board policy manual.

Values in School Board Practices

JAMES H. TIMMONS

Assuming there is a relationship between the use of important practices and efficiency of school board operation, the author lists and rates the most commonly employed school board practices.



Dr. Timmons is an assistant professor in the department of education at Kansas State College of Pittsburg, Pittsburg, Kans.

Whether a school system is excellent or poor is in part attributable to the decisions of past and present school board members. Many of these decisions are predetermined as a result of a rather definite set of practices employed by the board of education. It seems reasonable to assume that the efficient operation of a board necessitates the employment of important school board practices. However, since all practices employed by boards are not of equal importance, it appears desirable to attempt to measure the importance of practices commonly employed by local boards of education.

Developing Measure of Practices

On the assumption that there is a relationship between the employment of important practices and efficiency of operation, a measuring instrument for assessing the importance of school board practices would be a valuable tool for evaluating the practices employed by boards. In developing an instrument for this purpose it would appear necessary to determine if a number of commonly employed practices could be reliably arranged along a continuum from "most important" (those practices considered most necessary for the efficient operation of the board) to "least important" (those practices considered least neces-

sary for the efficient operation of the board). Then, in the final analysis, this instrument could be used to assess the efficiency of operation of boards of education in terms of practices employed.

A scale believed to have usefulness as a measuring instrument in assessing the relative importance of practices employed by boards of education was recently developed at the University of Arkansas.¹

The procedure employed in the development of this scale is the well-recognized method of scale construction known as the method of equal-appearing intervals.

One hundred members of the A.A.S.A. acting as judges sorted 150 commonly employed school board practices into 11 piles which appeared equally spaced on a continuum which ran from "most important" to "least important."

The criterion for judging the quality of practices for the scale was the agreement of the judges as to location on the 11 interval "importance" continuum. The scale value of each practice was calculated by determining the median location for the 100 judges. Three practices having the smallest dispersion (greatest agreement as to location) were selected from each of the 11 intervals. Each practice was then tested for random distribution by Chi-Square. One practice did not test significantly different from having a random distribution at the 1 per cent level of significance. The remaining 32 practices forming the scale are listed below in order of importance with scale values.

Important Practices Listed

(10.44) Board delegates administrative functions to the superintendent of schools. (10.39) Superintendent attends all board meetings except when own contract or employment is being discussed. (10.31) Board employs and dismisses personnel only on superintendent's recommendations. (9.96) Board

employs competent legal counsel. (9.87) Board revises its rules and regulations frequently. (9.70) Board requires all school personnel and laymen to make requests and complaints dealing with administrative matters to the superintendent. (8.65) Board encourages surveys in evaluating the work of the school. (8.09) Board has a screening committee to interview candidates for superintendent. (7.78) Board provides expenses for teachers to attend professional meetings. (7.62) Board has liberal welfare policies for all personnel. (7.12) Some staff members attend board meetings as consultants. (6.89) Current publications dealing with the practices of school administration made available to all board members. (6.85) Board members receive copies of leading school board journals. (6.80) Board encourages community groups to use school facilities. (5.56) Board members attend study-council meetings. (5.25) Board members visit schools for ideas. (4.31) New Board members invited to attend meetings of school personnel. (4.28) Board has joint meetings with other boards. (4.10) Board receives publications from other schools. (3.50) Board members hold conferences with visitors from other districts. (3.50) Occasionally hold dinners or luncheons in conjunction with school board meetings. (3.31) Newspaper publicity concerning careers and interests of new board members. (2.47) Board sponsors social affairs for the school staff. (2.45) Hold closed board meetings occasionally. (2.20) First board meeting for new members a social gathering. (1.35) Board members admitted to school activities without charge. (1.34) New board members asked to address the faculty. (1.08) New board members given a courtesy certificate. (.66) Board members receive salary. (.62) Board purchases all school supplies locally regardless of price. (.50) All board meetings closed to public.

The median scale value of the practices employed by a board of education serves as the index of quality of operation.

¹ James H. Timmons, "A Scale Designed to Assess the Relative Importance of School Board Practices," unpublished Doctor's dissertation, University of Arkansas, 1960.

One Book Is Not Enough

MONTANA H. RICKARDS and CLARENCE HINES



Mrs. Rickards is head of the English department at Sunset High School in Beaverton, Ore. Dr. Hines is a consultant with The Bureau of Educational Research at the University of Oregon, Eugene, Ore.

Traditionally, a piece of chalk, a felt eraser, a red pencil, and a text-book have been the instruments of education which the American teacher has used to impart learning to the youth of this country. There is a strong possibility that, in the light of today's demands on the public schools, these are not enough. There is an even stronger possibility that some school boards will not recognize this and will expect teachers to perform miracles with little or no more in the way of materials than they had a generation ago.

A recent survey of 94 representative Oregon school districts, made by the Bureau of Educational Research of the University of Oregon for the Oregon Legislature's Interim Committee on Education, found that districts are becoming more conscious of the need for providing teaching materials. In an answer concerning district policy in regard to the provision of teaching materials and devices for facilitating teaching, almost one third of the districts said that it

was policy to provide as many such materials as the teachers request and will use. Thirty-five per cent said that they provided all materials necessary to make it possible for the teacher to do his most effective work. Only six per cent said the minimum required by the state for a standard school was provided by the district.

The increased interest in and demands on public school education during the past few years have caused many school boards to look questioningly at the instructional program of their schools. In some instances, drastic changes have been undertaken. The purposes behind these changes have been commendable, but the thought and planning which have preceded them have often been slight, to say the least. Few school boards expect the industrial arts teacher to use only *one board* a year, but some may expect that *one book* a year is entirely adequate for a class in an academic subject. The purpose of this article is to call attention to the fact that additional materials are required when improved programs are undertaken and to point out how one school board provided them.

Schools Seeking Ways to Improve

Special programs, enriched programs, group programs, and "track" programs are the subject of discussion in almost every educational meeting held today. This is true at the local, state, and national levels. School systems everywhere are seeking ways of improvement. Teachers, administrators, and school board members, and the public itself want to improve the quality and efficiency of the instructional program. Various devices, such as team teaching, new

School districts are sometimes slow to provide their teachers with the latest in teaching materials. Here is one method used in Oregon to improve instruction in the school district.

Elated over the supply of new materials, senior English teachers sort and examine books for their classes.



teaching aids, and teaching machines are some among those being suggested and discussed as means of improvement. In the final analysis, however, any real improvement that comes about must involve the teacher and the student in a learning situation. Teacher training institutions are working constantly to improve the quality of their teacher graduates. Manufacturers of instructional materials and publishers of textbooks work with equal diligence to produce better and more usable products for the classroom. Regardless of the training and ability of the teacher, the improvement desired in instruction cannot and will not come about in the quality desired unless the teacher is provided with adequate materials with which to teach.

New Program Envisioned

The school board of the Beaverton, Ore., school district and its superintendent, D. Herbert Armstrong, saw the need for improved instruction in the academic subjects. Realizing that it had neither the staff nor the financial resources to start improvement in all subject areas at the same time, the board decided to start with English. Recognizing communication as basic to all learning, the board and superintendent began plans in 1958 to make a "track" or grouping approach to instruction in English in each of the high school grades.

For each grade of the four years of high school, three groups were organized on the basis of ability and achievement. Teachers were assigned to the slow, average, and fast groups according to their own training and interests. Those believed best qualified to teach the advanced groups were assigned those sections to teach; those who worked best with the slow and those who worked best with the average received such assignments. The "track" system was approved by the board as an effort to gain the maximum in teaching effectiveness and to insure greater homogeneity among the pupils in the different English classes.

As a first step toward the improvement in the teaching of English in its two high schools with a combined enrollment of some 2200 students, the Beaverton board authorized its administration to reduce the teaching load of all English teachers. Effective with the school year 1959-60, English teachers were assigned five

classes with enrollment held to 22 per class, or a maximum load of 110 per teacher. The board specified that more written work should be asked of the students indicating that with a reduced load English teachers could devote more time to the grading of papers. Since tracking was new to the district, more time would have to be spent on planning also. This plan of reduced load of 22 per class and a total number of classes amounting to five was in effect for one year. Due to a mechanical problem, the need of more classrooms, the 1960-61 plan was altered slightly. English teachers were assigned four classes instead of the usual five taught in Oregon by academic subject teachers. The teaching load, however, was unchanged, 110 to 112 per teacher, insuring that teachers would still have time to do the kind of job which was expected and preventing a return to the old load of 140 to 150 taught by English teachers in comparable school systems.

Need for Additional Materials

Progress under the new plan was watched closely during 1959-60 by both teachers and administrators. Regular reports were made to the board by the superintendent, heads of departments working with the program and the teachers. Strengths and apparent weaknesses were pointed out. It was found, for example, that some teachers needed help with new methods and the effective teaching of composition. Some seemed to have better success with their groups than others. For all students, however, the superintendent was able to report to the board at the end of the year, achievement had been made and failures reduced substantially.

In addition to personnel needs, two other needs became apparent as the program progressed throughout the year. One was for additional reading material for all three groups but particularly for both the advanced and slow learners. The other was for additional audio-visual aids to correlate with the instructional program. As these needs became more apparent, the superintendent was able to report to the board that additional funds for these items would need to be included in the annual budget. Recognizing the need for these materials as explained by department heads in both high schools and pleased with the success of the pro-

gram, the board authorized the inclusion of additional funds for reading materials for the English classes. It also increased the amount for the audio-visual aids budget, many of the new materials purchased being available for use in the English classes.

For 1960-61 a total of \$5,000, approximately two dollars a student, was made available for additional reading materials for the English classes. As the list of materials and the order was finally made up and submitted for approval by the English department heads and other English teachers working on extended contract during the summer, it amounted to \$5,600. The order consisted of both hard back and paperback editions of books in literature, composition, vocabulary, and class reference books for teachers. In addition, periodicals were included. Arrangements were made for students to have some individual copies, especially the middle track student, but a greater outlay than had been made before was in room sets of 30 and small sets of five to ten for group work in the higher track classes. The paperbacks ordered were at a low initial cost and considered expendable.

Upon their return to duty at the beginning of the 1960-61 school year, teachers of English were elated to find on hand the additional reading materials for their classes. New teachers were especially grateful to have such materials. With units of work outlined and reserved and supplementary reading charts prepared in the curriculum workshop during the summer, they envisioned even greater success for the program during the second year of reduced pupil load in a new tracking plan than in the first.

Mechanical Needs Recognized

It is not difficult for teachers, administrators, and board members to recognize the need for purely mechanical things such as machines, science equipment, maps, globes, and charts which speak for themselves, but books, so long a part of schools that they have become an accepted but unnoticed part of education, are easier to overlook when new programs are started. The written word, even in paper back format, still has an important contribution to make to the education of American youth in the 1960's. ■

The problem of losing valuable teaching time by assigning teachers to student supervision has apparently been solved by this California school which recently hired a full-time student supervisor.

We Leave Teachers in Classrooms

WILLIAM PLUTTE

Mr. Plutte is principal of the De Anza High School in Richmond, California.

A major administrative headache revolves around the problem of teacher selection for student supervision assignments. Normally, teachers are at best apathetic towards the assignment, but worse is the increase in teaching load for each period of assigned teacher time.

De Anza high school had used as much as eight teacher-periods a day for student supervision in the past. These assignments included before and after school duties as well as during lunch periods. Based on a five-period teaching day it may be said that 1% teachers were used for student supervision.

Using an annual salary of \$5,000 it was costing the school \$8,000 per year for this assignment and eight periods of students had to be assimilated into other teachers' classes.

It is true that supervision can be a fine teaching situation, but actually, it is merely a fairly unpleasant chore that must be tolerated.

In the Richmond Union High School District, the annual cost for teacher supervisors had been astronomical, and, with justification, many lay and teacher groups questioned the educational values received from the expenditure of these monies. On the other hand, how can students be supervised without teachers?

Discussions held among administrators finally centered on the question, *must supervisors be teachers?* Non-teachers cook and serve food to students, why couldn't nonteachers be trained to handle supervision?

The first step was to determine the legality of the proposal and the findings were that noncertificated personnel could perform supervision duties.

Second was the question of where to find capable personnel who would perform satisfactorily on a noncertificated pay schedule. A memo went out to the ten secondary schools in the district,

listing qualifications desired in a non-certificated student supervision person. Briefly, they called for a minimum of a high school education, a good work rating by the applicant's principal, a neat appearance, past work, if possible, with youth groups, and, finally, the belief that he could work with youngsters in discipline problems.

De Anza high school was designated as the school that would try the experiment if capable personnel were discovered. Some two dozen applications were received from custodians, maintenance workers, and gardeners. On past records, they were screened down to five candidates who met all the requirements and these met with a screening committee for a discussion of beliefs, attitudes, and general opinions. Two remaining candidates required a great deal of thought and finally the survivor was notified of his new position.

Orientation Program

One week prior to the fall school opening the student supervisor was assigned to De Anza, and he went through the five-day orientation program presented to new teachers. In this way he became well acquainted with the problems and responsibilities of teachers and was indoctrinated into the daily routine of students.

On the new students' orientation day the student supervisor was introduced matter-of-factly and little fanfare resulted. Through the principal's daily bulletin, he was presented to the entire school on opening day and his responsibilities were summed up. Immediately assigned to aid him were sufficient numbers of boys who were to act as an extension of him when he wasn't available. Since he was expected to supervise several dozen acres plus innumerable eating, walking, and sitting areas, and the cafeteria, it was necessary to offer him this assistance.

A special indoctrination program for these assistants was designed to impress upon them the status of their positions; that they were programmed to this "class," and that they would be graded according to their actions. Dress, appearance, and general manners were stressed, and the new regime was underway.

Throughout the year no really serious problem was encountered by the student supervisor. He had been introduced to the students as a direct representative of the principal and his authority was never questioned.

In the beginning it was warned that some parents would resent this type of school official, but not one complaint was registered. If anything, this type of supervision proved more successful than a teacher-assigned situation. The student supervisor was concerned solely with student control and his only assignment was to see that the school discipline, on an out-of-class basis, become as good as possible. In tribute to his relations with students, he was often invited as a guest to dances, parties, and other functions. He had been accepted by students and faculty members and everyone felt that student actions were definitely improved.

Further evidence of the success of the program was revealed when four more Richmond High School District schools embarked on a similar program this fall.

The program saved the district money. Nine months of the supervisor's salary was apportioned to student supervision, two months to custodial services rendered during the summer vacation. Educational benefit sprang from the fact that teachers were freed of this tedious task and put back into the classrooms.

The experience was at first worrisome, later educational, and finally satisfying. Despite some qualms it worked one year and can work again. ■

Automation in School Accounting

ADDISON B. SAATHOFF

The change required to obtain automation in school accounting often presents problems in personnel training, but with the proper employee approach and attitude, the job can be accomplished.



Mr. Saathoff is controller of the Oakland Public Schools, Oakland, Calif.

California's Superintendent of Public Instruction, Roy E. Simpson, in a recent address appraising the changing face of education made the comparison of technological progress and speed. Technological progress in this world can be properly gauged by the changes in speed at which mankind can travel. Fifteen centuries before the Christian era the speed of man was only as fast as a horse could carry him. This rate of speed remained constant for about 3350 years when in the middle of the nineteenth century the locomotive was invented. From this point on, man's rate of speed of travel increased at a gradu-

ally accelerated pace. In 1903 man took to the air and was soon flying at 40 miles per hour. By the end of World War II man was flying nearly 500 miles per hour. Ten years later man was flying three times that speed or 1500 miles per hour.

This accelerated rate of speed at which man can travel is graphic of the accelerated rate of technological change in many other areas. In order to keep pace with the increasingly fast changing world about us the school business official must adopt and apply the tools and the procedures of automation. The school business official no longer can make "seat of the pants" decisions. This was permissible when he was riding "Old Dobbin" and so was the rest of the world. Today he needs facts quickly: he needs selected facts chosen from many. He needs to accept the concept of management by exception.

The second reason for automation of school accounting is simply the economic one of solving the problem of ever increasing costs of clerical and administrative help, to accumulate the ever increasing quantity of facts necessary to operate the school business in this atomic age. It is the responsibility of the school business

official to manage the school dollar economically as well as wisely.

Private industry as a whole has been much quicker to face the two problems mentioned before, principally because of the pressure for profits—the pressure to stay in business demanded it. The school business official does not have this pressure; therefore, he must develop within himself the incentive to solve these problems through a sense of responsibility to his job and to the taxpayers of his district. This takes courage. Automation requires change: change invites resentment on the part of your associates; change invites mistakes; change requires training of personnel; change requires a lot of hard work.

Work Is Outlined

Automation and technology are general terms and require examples of specific applications before they become meaningful. Therefore, I would like to outline for you the work we have done in the last year and one half at the Oakland Public Schools in the field of automation. It is recognized that there are officials from school districts of different sizes and with different problems; therefore, the applications described here

The new IBM console inquiry station (right) enables the operator to check directly on the status of any data in the IBM data processing system by entering questions on the station's dayboard. Answers are automatically printed out almost instantaneously.



may not in all cases fit; however, I am sure the general concepts underlying these applications have significance in any school district.

The Oakland Public Schools is a Unified District with 65 elementary schools, 15 junior high schools, 5 senior high schools and 2 junior colleges. Our average daily attendance is 65,000 pupils. We have approximately 4500 employees many of whom are part-time or temporary employees.

A year and one half ago we did have a punch card operation using the I.B.M. 402 Tab Machines; however, its application was principally that of a printing press operation. No calculations were done in this department and no controls were maintained. Our basic accounting procedures had been established in 1917 and were substantially the same except as new reporting requirements throughout the years came along, new techniques were tacked on the old system. As in most school systems most of our key employees had been with the system for many years and knew these procedures well — too well! Many had come directly out of school to the job they were doing; therefore, the job they were doing was their total business investment in life.

In analyzing the problems that faced us it became apparent that a complete overhaul of our accounting manual (which we didn't have) and relating procedures and forms was necessary. At this same time the I.B.M. 305 Ramac became available on the market which gave promise for a wholly integrated electronic data processing system for our fiscal accounting. We hired a man with no data processing direct experience, but one who had excellent accounting knowledge and knowledge of California school accounting. This man, Donald Luce, was sent to various I.B.M. schools and was assigned the job of programmer and supervisor of our data processing department. Preliminary procedure revisions not directly associated with data processing, but as a result of the disciplined scrutiny required by data processing, saved enough time of the accounting staff so that it was unnecessary to hire additional personnel to develop new procedures.

Worked Closely With Authors

Working closely with our auditors

we revised practically every form and every procedure affecting accounting records. We completely overhauled our basic accounting and budgetary concepts. Mr. Luce, with the assistance of a programmer furnished by I.B.M. and part-time assistance of one man in his department, began programming the 305 Ramac to do the job our new procedures required. Much time was spent in keeping other people in the school system informed who would be affected by the mischief we were up to. This, in any change, is extremely important: in this way you solicit their co-operation; you help eliminate their fears; they gain the sense of feeling of being a party to the project; they become prepared and ready for the training which is to follow.

On July 1, 1959, the 305 Ramac was installed. For those of you who are not familiar with the Ramac the feature peculiar to this computer is the disc file which permits random access to information stored on these disc files similar to the operation of the nickelodeon. Other computers are now on the market which also satisfy

items of our warehouse inventory which include the coded stock number, description, quantity on hand, average unit price, quantity issued to date, quantity on back order, quantity on order, date and purchase order number of last purchase, minimum and maximum levels; also in Ramac is personnel information such as rate of pay, expenditure classification to be charged, budget classification to be charged, sick leave balances, vacation balances, F.I.C.A. information, deduction information, retirement information, W2 information and other information necessary for the maintenance of personnel records and the computation of payroll.

Also in Ramac we have our budget, our general ledger control, our expenditure ledger, special detailed cost ledgers, and job cost information. Every transaction affecting our fiscal accounting is processed through Ramac. Perhaps a listing of the various operations we have on our computer would help explain what I mean by an integrated data processing operation. We prepare invoices for issues of supplies from



— IBM

this feature. The fiscal year 1959-60 was a year of transition. June 30, 1959, we stopped one accounting system and its related procedures: July 1, 1959, we started a new system. Entailed in this was the job of training to some degree or another nearly every person affecting accounting records, entailed in this was also the correcting of weakness in procedures and programs — the correcting of human error augmented by change.

July 1, 1960, we completed the full cycle of a year of fiscal accounting fully integrated into data processing. In the 305 Ramac we have all

warehouse to schools, we compute and prepare all payroll warrants, prepare job cost reports, prepare bill warrants, prepare special cost reports, prepare budgetary control report, maintain and post personnel earnings report, trial balance listings, stock status reports, encumbrance listings, stock shortage notices, prepare W2 reports, retirement reports, F.I.C.A. reports, deduction reports. In short, in this computer is our entire accounting system. The basic accounting responsibility rests in our data processing department — not our accounting department.

Review Request Procedure

To further clarify integrated data processing, let us review the request of a school for a dozen pencils which we normally supply from our central warehouse. The principal of the school writes a requisition for these pencils and sends the requisition to our central budget control section. This request is then coded for expenditure account and stock number of the pencils. The request is reviewed for propriety and if it passes this test, it is sent into data processing. When this request is submitted to Ramac, it first tests to see if we have sufficient stock on hand; if we do not, it is back ordered and budget control is notified of this fact together with information as to other quantities on back order or information of quantity on order should there be any.

On the other hand, if we do have the pencils, Ramac next tests to see if we have a budget appropriation available; or if there is a special cost code involved, if there are funds available in this cost code. If either one of these tests fails, the request is back ordered and budget control is notified of the condition of the account. If, on the other hand, the request meets all of these tests, the computer then processes the request; first, the quantity of pencils on hand is reduced by one dozen; then one dozen is multiplied by the average unit price of the pencils—this gives the dollar value of the request. The expenditure and special cost records are increased by this amount and the available balance in the budget control accounts is reduced accordingly. The computer then actually prints out the invoice giving name of school, special instruction, if any, date, expenditure code, quantity, description, price and extended amount, and totals the invoice if more than one line item is on this invoice.

At the same time the computer, through its card punch, prepares a punched card with information affecting the expenditure account and information affecting the issue of the item in question. With these two cards we can then prepare a listing for audit trial purposes both daily and in monthly summaries as to activities involving expenditures and activities involving items of warehouse issue. The invoice is then sent

to the delivery department. It is their instructions to deliver the pencils to that particular school. This all is done in a second or two and the entire accounting transaction is complete—all affected records are instantaneously updated.

Computer's Work Complex

The computer's preparation of a payroll, of bill warrants, of special journals, and of encumbrances are just as complex: each requires special programs of instructions to the computer. To do the complete accounting job we have had to prepare in excess of sixty separate programs involving more than 8000 instructions to the computer. In addition to this, all procedures and panels involving off-line equipment needed to be changed to meet the requirements of the new system.

I have indulged in the luxury of telling you about us with two thoughts in mind: one, to give you my definition of automation of school accounting; and second, to convince you that it can be done. The benefits which we are receiving from automation are quite impressive. We have reduced the personnel in accounting alone sufficiently to more than offset increased machine rental; personnel savings in other departments have been made in addition to the fact that increased requirements and work load would have required the hiring of two additional people over the last year had we not automated our accounting. We now have information available which was never possible before, and we have it immediately: as an example, within 20 minutes we can have a complete budgetary report reflecting all transactions processed up to 20 minutes ago. But perhaps most important is our ability to maintain absolute budgetary control and to run the affairs of the school business on an exception basis. Information involving control totals and information signaling trouble are immediately brought to our attention. Routine and detailed information is available when this type of analysis is desired, but they do not hide from us the significant facts we should know.

Now let us turn our attention to basic principles or requirements to be considered in effecting automation of school accounting. First and foremost is the establishment of a master plan; by this I mean a clear picture

of where you are and where you want to go and a broad outline of the major steps necessary to obtain your goal. This master plan needs to be understood by key people in your organization; these people must be sold to the point they enthusiastically endorse it and then policy approval must be obtained.

Behind this master plan must be considerable supporting information such as the equipment to be used, the manpower to be required, the financial impact on your organization, rough flow charts of new procedures to give definition to your goal. You must be prepared to answer questions in depth. You should have a target date—one realistic but not too relaxed. The master plan must be presented with a confidence that it is the best plan for the system. This confidence will be tested many times as you proceed.

Project Leader Most Important

After approval has been obtained, the project team needs to be selected and trained. Basically a project team has three requirements: first, a talent of leadership; second, a talent of systems and procedures; and third, a talent of programming equipment and computers. The selection of the person or persons to program the computer does not necessarily imply programming experience. My preference would be a person with high aptitude to programming who has basic accounting knowledge and, if possible, knowledge of your operation; the selection of the systems and procedure individual is equally important, but less defined. The prime requisite is intelligence and the keen desire to do systems work. Sometimes the programmer and the systems man can be the same person or an accounting firm may be employed. Leadership must be supplied by the person charged with the responsibility of putting your project in operation; along with that responsibility must go authority.

In establishing new procedures everything you are now doing must be analyzed and asked the question, why? The needs of management at various levels must be understood. Are they now receiving unnecessary information? Do they need additional information? When do they need information and in what form? As you work through the various oper-

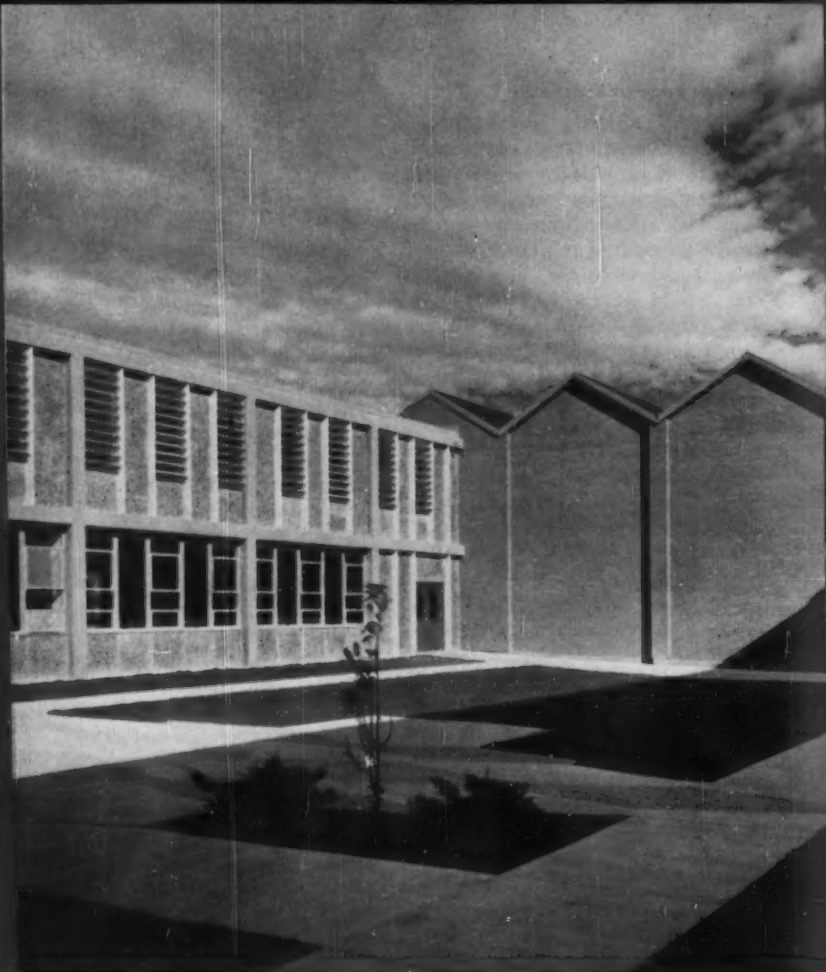
(Concluded on page 48)

The School Plant

Formulating the executing building plans is the subject of this month's Special Report on the "Anatomy of School Planning." Dr. Charles Wells, Jr., school plant planning consultant, outlines the various steps in projecting and constructing a particular high school for a particular community.

Other articles regarding ideas for a modern junior high school, several statements on notable new schools, and a report on building the school addition are also in this section.

The story of how one community made use of citizen's committees in school planning and a practical article on testing classroom furniture conclude the line-up of reports presented especially for the review of those connected with the school plant.



Ideas for a Junior

NATT B. BURBANK



Mr. Burbank is superintendent of Boulder Public Schools, Boulder, Colo.

The planning of Centennial Junior High School in Boulder, Colo., was grounded in the philosophy of the community. The thinking citizens of the city wanted every junior high school student to finish off the basic preparation which began in the elementary school. In addition, and fully as important, it was decided every child must have a chance to sample a wide range of elective areas in order to begin to identify his individual interests and abilities. In all studies, however, provision was made for a wide variation in capacity to learn.

Broad Program Needed

It was felt that the development of the individual to the best of his ability should be the aim of the junior high program. Well-balanced growth in physical, social, and emotional

To complete the basic education started in the elementary schools and to offer children a variety of electives were the motives behind the planning of this Boulder, Colo., school.



The walls around each science room (like the one above) contain built-in cabinets and panels where equipment can be set up and left intact from one class period to another, a new departure in science classrooms.

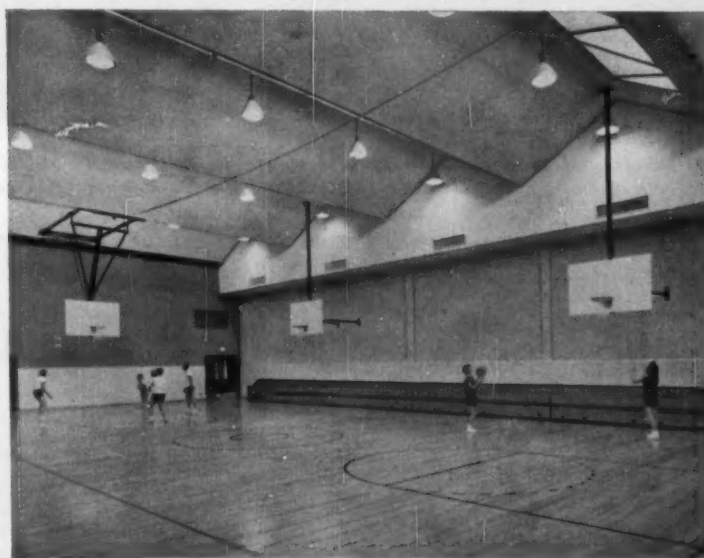
High School

areas must supplement formal learning. Provision must be made for retarded as well as gifted. All these objectives should be met without making the mistake of providing a junior edition of a senior high school.

Considered Gifted Pupils

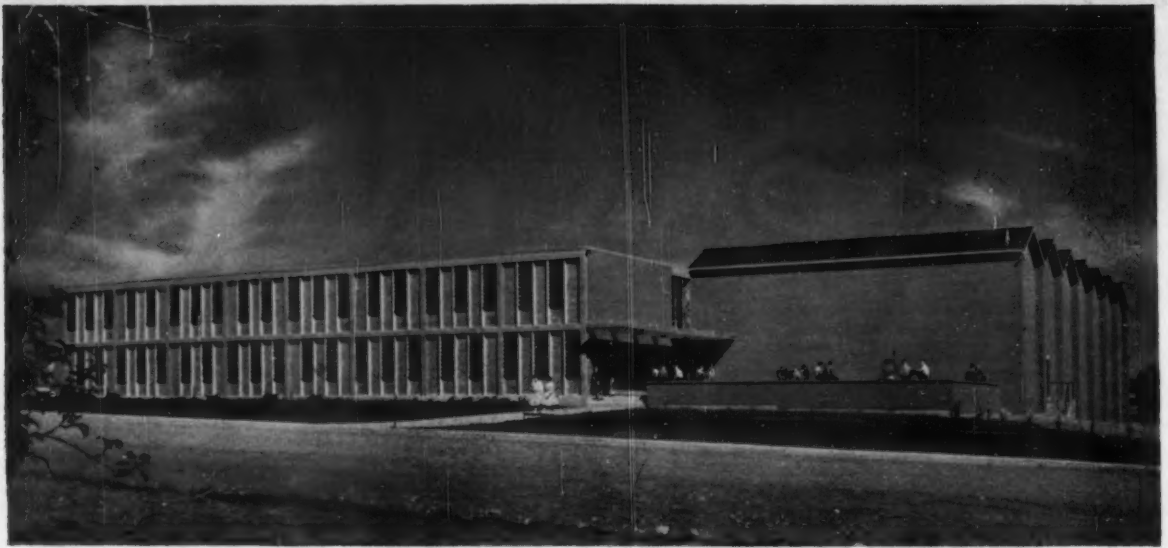
Among other considerations was the strong community emphasis on the identification and provision for pupils of superior ability. Boulder is strongly influenced by the presence of the University of Colorado and several large organizations for scientific research. Therefore, it was natural that these people should lead in support of programs for the more able and ambitious children.

Also important in the planning was a desire to conceive a building which would be not only educationally useful but aesthetically pleasing. We



The gymnasium has a unique "sawtooth" roof design with vertical skylights on north surfaces. The resulting large area of glass furnishes enough non-glare, north light that there is no need for artificial lighting on bright days.

— Photos by James H. Roberts

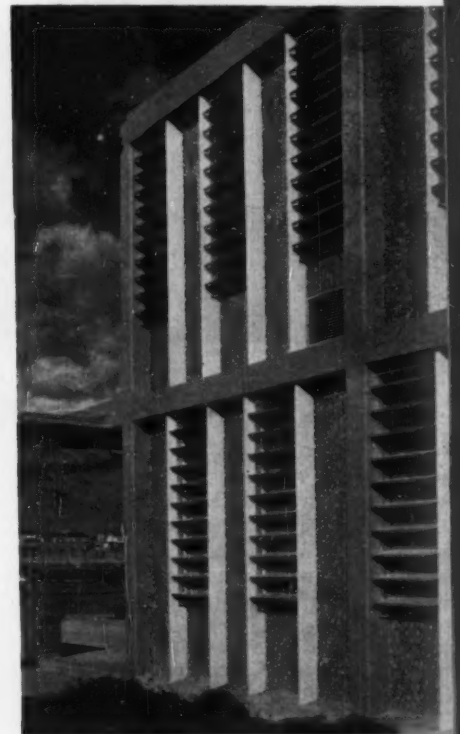


Patios (like the one above) at the two main entrances afford students a chance to get outdoors during bad weather and have a fair-weather gathering place before classes.

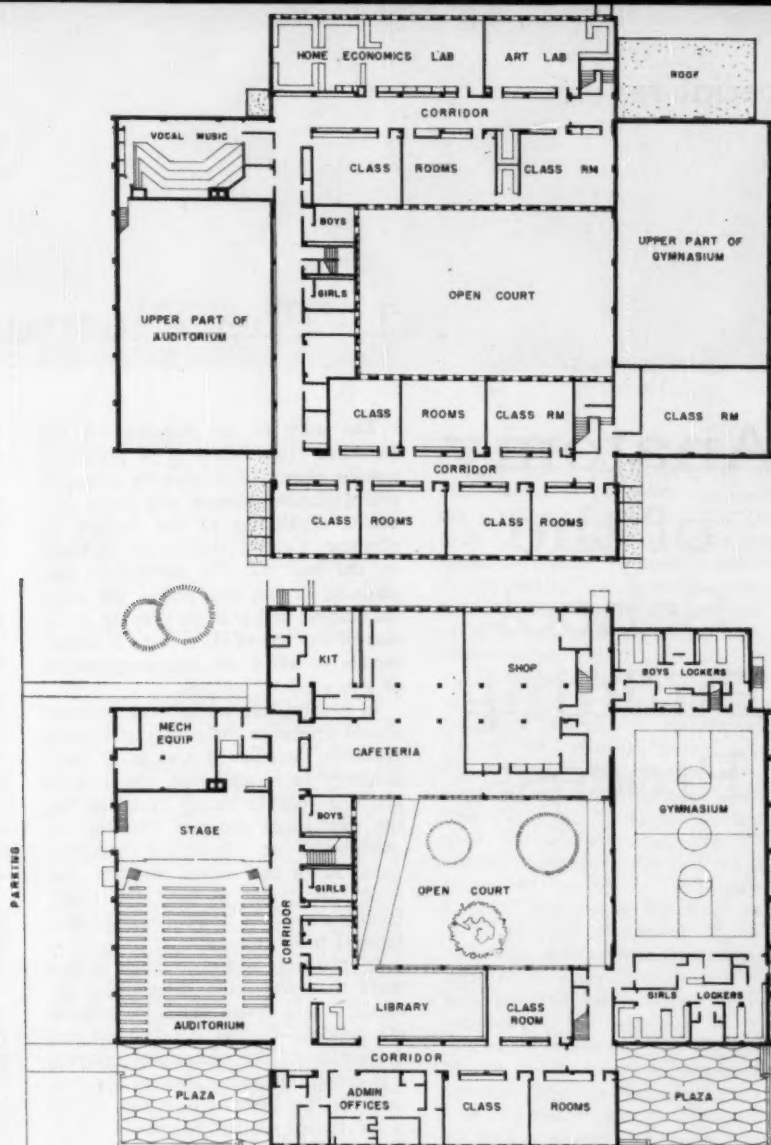
Lighting in the auditorium offers an eye-catching pattern in this view from the stage. The auditorium seats approximately 300.



Many patterns and colors of glazed tile have been used throughout the building. These were selected by architect Hobart Wagener and school system art supervisor Frances Trucksees.



South windows in the building are metal-louved on the outside. These blinds are mechanically operated from the inside for improved control of natural light.



Floor plan of the Centennial Junior High School designed by Architect Hobart Wagener of Boulder, Colo.

were not willing to assume that functional things must be ugly or even plain.

Every effort was made to provide spaces which can be adapted to instructional needs, both now and in the future. The science rooms include permanent wall display cases on which the teacher can affix exhibits for recurring units. The panels can be converted readily to new uses, and are easily closed up when not in action.

In addition to the gymnasium, an all-purpose physical education room was included. Isolated in a corner of the building and measuring 31 by 54 feet, it is used for small gym groups, wrestling, square and ballroom dancing classes, and other activities which do not require an entire gym.

Faculty Participated

From the beginning, the teachers and administrators of our two existing junior high schools took part in the planning. They were asked to dream that we had all the money we wanted and could build the ideal school. The teachers in each department laid down the outline of the very best facilities they could imagine. From that point, eliminations were made until the level of our financial capacity was reached.

The school board was active from the germination of the idea of the schoolhouse through the bond election, land acquisition, planning, and construction of the \$827,788 school.

Throughout the planning period,

the members kept close touch with progress. From time to time the plans were brought before them for review and for guidance on basic questions of policy and finance.

The firm insistence of the board on thorough analysis of educational need was a major factor in the production of the most functional and pleasing school building constructed in Boulder in recent years.

The process was slow and laborious, requiring countless meetings of teachers, principals, counsellors, the architect, central office planners, and the board of education. It was agreed by all, however, that the time and effort were thoroughly justified by the end product, a soundly planned school building. ■

Anatomy of the School Building Process

1. The Planning Function

The story of the planning for the Riverside High School is of particular interest since it illustrates the complete school planning process and shows successful application of one method of planning. Certain steps were dictated by the fact that the community was planning its first high school, but careful analysis will indicate that the omission of any one of these steps is almost certain to affect the future usefulness of a new school building.

In general, the educational program should determine the educational plant. However, there has been an unfortunate tendency to assume that school plant planning consists mainly of translating the educational program into the requirements, or educational specifications, for a new school building. Actually, the major planning for a new facility consists of determining the educational program.

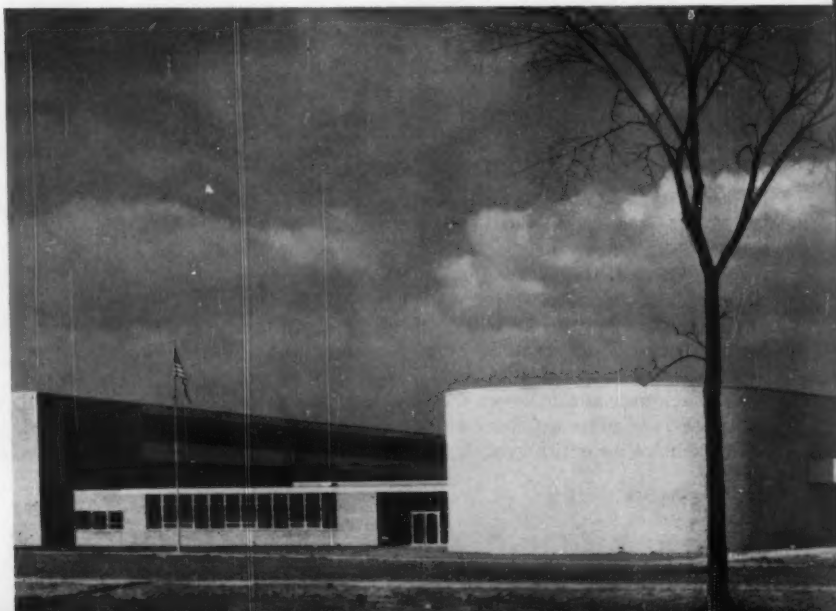
In planning Riverside High School more time was spent determining the educational program than constructing the building. Further development and delineation of the educational program was carried on during construction and, now that the building is in use, is still being carried on, but in greater detail. It was necessary to telescope the educational and architectural planning and

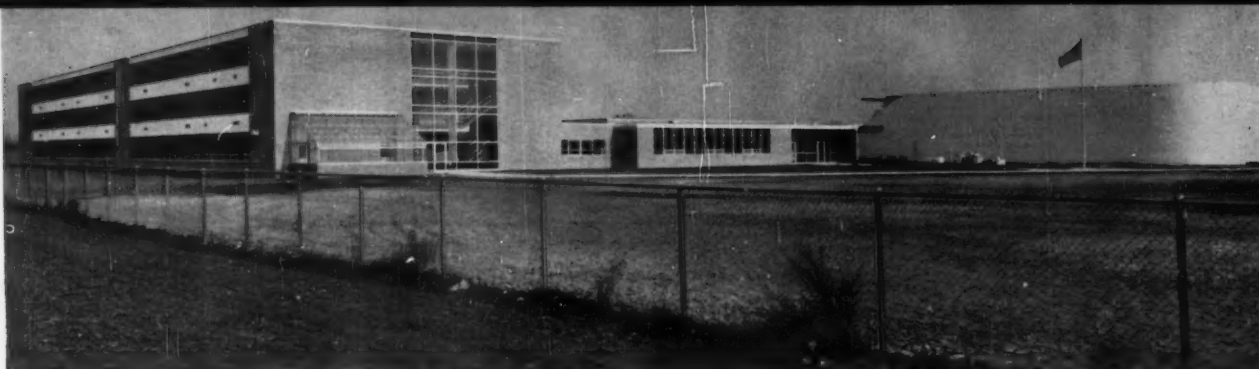
the construction into less than four years, most of which was devoted to educational planning. Development of the educational program and the educational specifications was accomplished in 19 months, architectural planning and bidding required 10 months, and construction time for the first unit was less than 14 months.

A Method for Planning

The determination of an educational program and the creation of educational specifications may be considered as the solution of a series of problem situations, each dependent upon the information acquired and the decisions made previously. One generalized method was used in planning the new Riverside High School. This method consisted, simply, of the board of education delineating the problem, submitting it for study to a committee made up of laymen and school personnel assisted by one or more educational consultants, and acting upon committee recommendations. In this way it was proposed that the school district should build its own high school, the philosophy, goals and objectives were determined, the curriculum and organization were set up, the educational specifications were written, and the architectural

School plant planning, which consists of determining the educational program for a specific community school, is covered in this report on Riverside High School near Dearborn, Mich.





Riverside High School

plans were finally approved as a proper interpretation of the educational specifications.

Background

In order to appreciate the situation in which the planning for the Riverside High School took place, it will be helpful to know something of the community. Dearborn Township School District No. 3, a segment of the "bedroom area" located north and west of the city of Dearborn, Mich., is nearly rectangular, two miles east and west by one mile north and south. It is traversed from the northwest to the southeast by a county park and recreation area located along the middle branch of the Rouge River. This park area occupies almost one third of the slightly more than two square miles of the school district; the remainder is almost entirely residential, with no industry and a minimum of business and commercial property.

The 1960 population was approximately 14,000; the 1960-61 public school enrollment was 2416 in grades K-12; the 1960 state equalized valuation was \$24,506,310, or \$10,143 per resident pupil — slightly below the 1960 median of Wayne County's 43 school districts, \$10,968. A 1957 survey of the

parents of public school children showed that the majority were relatively young, had resided in the school district three years or less, and could be considered as middle or upper-middle class. About three-fourths of these parents had completed high school while 23 per cent of the fathers and 9 per cent of the mothers had graduated from college.

The First Problem

The first problem confronting the district was to determine the best way in which it could provide a secondary education for its children. Traditionally the district provided facilities for grades K through 8, transferring grades 9 through 12 to the neighboring Dearborn City Schools. In the late 1940's and early 1950's the number of homes in the district increased enormously. The accompanying enrollment surge required the construction of two new elementary schools to supplement the one which had previously served the district.

At the same time Dearborn was experiencing greatly increased elementary enrollments and could project similar increases in future secondary enrollments. In 1956 the Dearborn board of education warned that within a few years it would no longer be able to provide for the high school students

from Dearborn No. 3 and suggested that the school district plan for some other means of caring for its secondary enrollment by 1960-61. The Dearborn No. 3 board of education determined to explore all possible solutions to this problem and, upon recommendation of Superintendent Hugo Perri, set up a Secondary Study Committee late in September, 1956.

The Secondary Study Committee recognized three alternatives: (1) transfer secondary students to another school district; (2) join neighboring districts faced with the same problem and construct a high school; or (3) build a high school for the district. Feeling the need for professional assistance, the committee recommended that the board secure the services of Dr. Charles F. Lehman, assistant to the dean, School of Education, University of Michigan.

Late in March, 1957, having worked regularly with the committee, Dr. Lehman reported his estimates of future enrollments, his projection of future assessed valuations, and his analysis of the three courses of action, based upon his estimates and information provided by the resident survey conducted by the committee. This survey indicated that 99.6 per cent of the parents expected their children to complete high



This is the main entrance of the Riverside High School with the 3-story classroom section on the left and the group education facility on the right. The school was designed by architects Jahr-Anderson-Machida Associates of Dearborn, Mich.



The physical science classroom-laboratories, like the one at the left, have perimeter facilities located along the corridor and rear walls. The door at the left leads to the storage work-room.

school and that 82.1 per cent expected them to attain a college degree. Dr. Lehman also considered that the future secondary enrollments would be great enough in the district to operate an adequate high school program.

This information, coupled with high community aspirations and a record of willingness to tax itself heavily for school purposes, led the committee to report that it appeared feasible for the district to consider building its own high school. The alternative of transfer had been discarded after investigation revealed no neighboring district willing to accept secondary students on a long-term basis. The remaining alternative of reorganization did not appear practicable for the present, but the construction of a high school, it was felt, would not hinder any future reorganization. The committee then recommended to the board that the district initiate a secondary school program, planning for the erection of a suitable facility.

To Build or Not to Build

The board of education decided that, before planning further for the new high school, the question of establishing and operating a high school must be sub-

mitted to the electors since an unfavorable vote would make it impossible to proceed in this direction. It was considered best to vote upon the necessary bond issue at the same time. Enrollment in grades 7-12 was expected to be at least 825 by 1959-60, the earliest the building could be ready, and it was estimated that an adequate building could be constructed for \$1,880,000 in local funds, supplemented by any available Federal funds for aid to defense impacted areas. Additional elementary classrooms would be needed by 1958 and would require about \$420,000. Thus the district would need to bond for \$2,300,000, or 25.4 per cent of its 1956 state equalized valuation of \$9,246,704. Bonding in this amount was made possible only through the provisions of the Michigan School Bond Loan Program, which placed the faith and credit of the state behind properly qualified school district bond issues. It was anticipated that the 1957 state equalized valuation would be considerably higher, and it was later found to be \$17,389,928, thus considerably reducing the ratio of bonded debt to valuation.

After a short but intensive campaign in which the findings and recommenda-

tions of the Secondary Study Committee were given wide publicity, an election was held on June 10, 1957. The vote on establishing the high school was 714 for and 155 against; the vote on the \$2,300,000 bond issue was 606 to 106.

Determining Goals and Objectives

Now that it was evident that the community favored construction of a high school, the second problem was creating an educational program for the secondary school. The first step was determining the goals and objectives of the new program. This had actually been going on simultaneously with the Secondary Study Committee's work toward solving the problem of providing a suitable secondary education for the children of the district, for it had provided needed background for their decision. With Dr. Lehman's assistance the committee studied national and state goals for secondary education, characteristics and needs of adolescent youth, and the needs, aspirations and educational philosophy of the community. In addition, the committee visited outstanding secondary schools to supple-

(Continued on page 30)



The main entrance and lobby of Riverside High School is shown at the left. The general office is entered through the double doors at the right.

2. Riverside High School

CHARLES WELLS, JR.



Dr. Wells is School Plant Planning Consultant for the Wayne County Board of Education, Detroit, Mich.

The most striking physical features of the handsome new Riverside High School are the imposing lines of the three-story classroom section and the unbroken white brick exterior of the wing housing the group education facility. While it is true that several

factors, including site limitations, determined that a part of the structure would be three-storied, this architectural emphasis upon instructional facilities was intentional. The educational specifications for this new secondary school had clearly implied that these were to be the most important of the facilities to be provided.

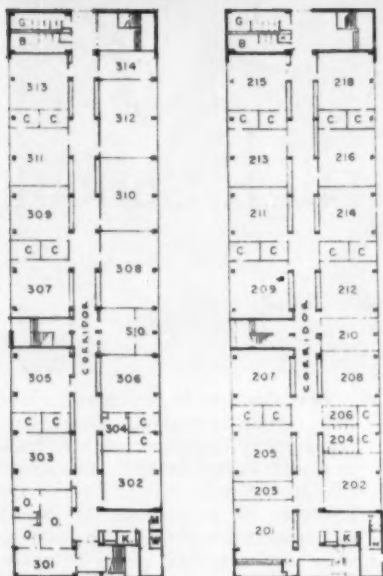
The educational specifications, developed by committees made up of both laymen and school personnel, were contained in a 130-page document which outlined the development of the curriculum, listed the teaching stations needed to implement it, and detailed the requirements for each space to be included in the building. The statement of general design considerations stressed the importance of flexibility, of securing the proper relationships between the various facilities coupled with the need for proper circulation, and of providing the required facilities within the restrictions of a limited budget. In addition, the building was to be placed on a site of 8.3 acres, purchased from the authority controlling the adjacent public park. The use of this small site was possible only because a part of the park is to be developed as athletic, playfield, and recreation areas by the park authority.

Flexibility may be considered to have three aspects, adaptability or versatility, convertibility, and expansibility. Each of these is exemplified in the new Riverside High School. Adaptability, or the possibility of multipurpose or altered use, was considered vital. The building, while used at first for grades 7 through 12, will eventually become a senior high school; provisions for accommodating a variety of curricula and teaching methods were thus a necessity. The committees recommended relatively large teaching spaces, for they considered that there is a direct relationship between classroom size and adaptability. The typical classroom for English, social studies, foreign languages, or mathematics, as built, contains a bit more than 900 square feet, the business education rooms each contains 1220 square feet, and the science rooms vary from 1375 to 1500 square feet. While designed for a particular science, each of the science rooms is adaptable to any science, thus furthering adaptability.

A feature of the English, social studies, and foreign language classrooms which also contributes to versatility is the adjoining conference-workrooms of about 140 square feet. The committees anticipated that guidance would be

Students, who enjoy using the new art workshop, press even the windows into service as a temporary display area for their current projects.





THIRD FLOOR

SECOND FLOOR

Construction

Site: 8.3 acres

Foundations: reinforced concrete, structural steel, lightweight cone

Exterior: face brick, aluminum sash, low transmission glass, aluminum entrances, aluminum and porcelain enamel edge facias, wood egg crate shielding in homemaking department, 20-year bonded tar and gravel roofing on insulation

Interior: partitions — plaster and lightweight block; toilets, kitchen, locker room toilets, showers — structural glazed tile

Ceilings: acoustic plaster; cement plaster in toilets and locker rooms; acoustic form board in shop and gymnasium ceilings; acoustic metal pan in kitchen

Walls: painted; corridor and locker room walls — vitreous wall surfacing; stairhalls — face brick walls

Floors: asphalt tile; lobbies, toilets, showers — ceramic tile; stairhalls and kitchen — quarry tile; wood shop and gymnasium — wood floor

Mechanical: hot water boilers, gas-fired; unit ventilators with continuous wall cabinets in classrooms; central ventilating systems and finned radiation in administration, guidance, homemaking, and kitchen-cafeteria areas, gymnasium and locker rooms

Electrical: primary service — 277/480 volt secondary distribution; fluorescent lighting; intercommunication and public-address system; fire alarm system

Casts

Construction, equipment and site development, \$2,093,577

Square feet, 144,900 (not including 28,000 sq. ft. of walk through service tunnels, crawl spaces, and fan rooms)

Cost/sq. ft., \$14.45 (\$10.70 if extra footage above is included)

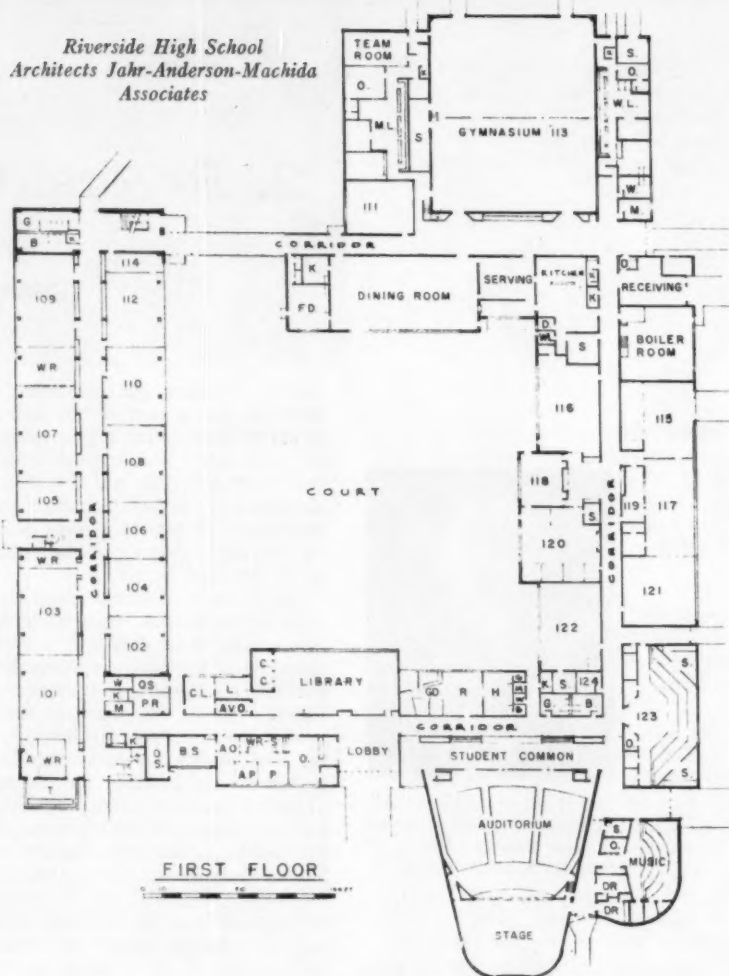
Capacity, 1250

Cost/student, \$1,672

Sq. ft./student, 116

Riverside High School

Architects Jahr-Anderson-Machida Associates



FIRST FLOOR

Legend

(Numbers in parentheses represent teaching stations.)

Common Learnings (English, Social Studies): Classrooms — 205, 207, 209, 211, 212, 213, 214, 215, 216, 218, 302, 303, 305, 306, 307, 309, 311, (17); conference workrooms — C; language arts laboratory (speech) — 201, (1); publications — 203; teachers' workrooms — 210, 304.

Foreign Languages: Classrooms — 202, 208, (2); conference workrooms — C; language laboratory — 204; workroom and storage — 206.

Sciences: Biological sciences — 101, 103, (2); animal room — A; conservatory — T; physical sciences — 107, 109, (2); general science — 110, 112 (when converted), (2); storage and workrooms — 114, WR.

Mathematics: Classrooms — 102, 104, 106, 108 (a part of 108 will become a storage and workroom for 110), (4); mathematics-science teachers workroom — 105.

Business Education: Typing — 308, 310, (2); general business laboratory — 312, (1); duplicating and machine room — 314; shorthand — 313, (1).

Instructional Materials Center: Reading room — library; conference rooms — C; library office — L; curriculum laboratory — CL; audio-visual office — AVO; preview room — PR.

Art: Art workshop — 122, (1); darkroom — 124.

Homemaking: Clothing — 116, (1); living area — 118; foods — 120, (1).

Shop: Metal shop — 115, (1); wood shop — 117, (1); planning area — 119; drafting — 121, (1).

Health, Physical Education and Recreation: Health classroom — 111, (1); gymnasium — 113, (2); locker and shower rooms — ML, WL; varsity locker room — Team Room; instructors' offices — O; storage — S.

Group Education Facility: Large-group learning space — Auditorium, Stage; dressing rooms — DR.

Music: Band — 123, (1); vocal — Music, (1); instructors' offices — O; storage — S.

Administrative Suite: Office and reception area — O; principal — P; assistant principal — AP; workroom and storage — WR-S; attendance office — AO; bookstore — BS; student organizations — SO (3rd floor).

Guidance and Health Suite: Reception area — R; counseling office — GD; nurse's office — H.

Food Service: Student dining — Dining Room; faculty dining — FD; kitchen; storage — S; dietitian's office — D; lockers — WL.

Custodial and Engineering: Heating plant — Boiler Room; receiving and storage — Receiving; janitors' closets and storage — K; outside storage — OS.

Total Teaching Stations — 45 (plus Group Education Facility, the teaching station equivalent of which has not yet been determined).

Products

Heating: controls, Trane; boilers, Scotch-Marine-Pacific; unit ventilators and heaters, Trane; temperature control, Johnson Service.

Electrical: fixtures, Sylvania; intercommunicating telephones, RCA.

Sanitary: toilets and urinals, American Standard; wash bowls, Bradley; drinking fountains, Halsey Taylor; flush valves, Sloan; shower mixing valves, Powers and Symmons.

General: gym equipment, Medart; bleachers, Universal; office furniture, All Steel Equipment; pupils' desks,

American Seating and Schoolco; auditorium seats, Irwin; cafeteria tables, Schieber; food-mixing equipment and dishwashing machines, Blakeslee; science tables and cabinets, Southern Desk Co.; home economics tables and cabinets, St. Charles Manufacturing; art tables, Stacor; library shelves, Standard Wood; wood shop benches, Hamilton.

Basic construction: windows, Valley Metal Products; doors, Aetna Steel Products; acoustic materials, U. S. Gypsum; folding partitions, Haws.

closely related to the general education program and recommended these conference-workrooms to be used for individual and small-group guidance and for individual and committee project work. Each conference-workroom is provided with a table and chairs and the movable storage cabinets, work counters, bookcases, wardrobes, and other furniture can be placed either here or in the classroom, according to the needs and preferences of the students and their teacher.

Other provisions closely related to adaptability are the various work and storage spaces and the language laboratory. Teachers' workrooms, located on each floor of the classroom, section are to provide facilities for typing and duplicating tests, grading papers, and so on. Separate teachers' lounges are also provided. Storage is of particular importance in science, so each science room is provided with a large storage room which can be further subdivided into conference, work, and special project space. The workroom between the two physical science rooms provides 600 square feet and similar areas are provided for the other science rooms. A small language laboratory, with 11 booths, is located between the two foreign language classrooms.

Convertibility and Expansion

Convertibility and expansibility, the other aspects of flexibility, are closely related. Convertibility is the possibility of major changes in space usage without exterior change, while expansibility is the possibility of increased floor area through structural changes. It was anticipated that future expansion of the proposed two-story classroom section would take the form of a third story. The resulting changes would require an increase in the number of teaching stations for science and mathematics on the first floor. Since both business education and science require generous space allotments, three rooms on the first floor (112, 110, and 108 on the plan) were designated as business education rooms with the expectation that they would eventually be converted into two science rooms, each with its storage room, plus a mathematics classroom. It was possible to add the third story while construction was still in progress and the conversion of these spaces will be made as soon as the additional science rooms are needed.

As originally planned the building provided for future expansion at several points, including the third story just described. It was hoped that both an

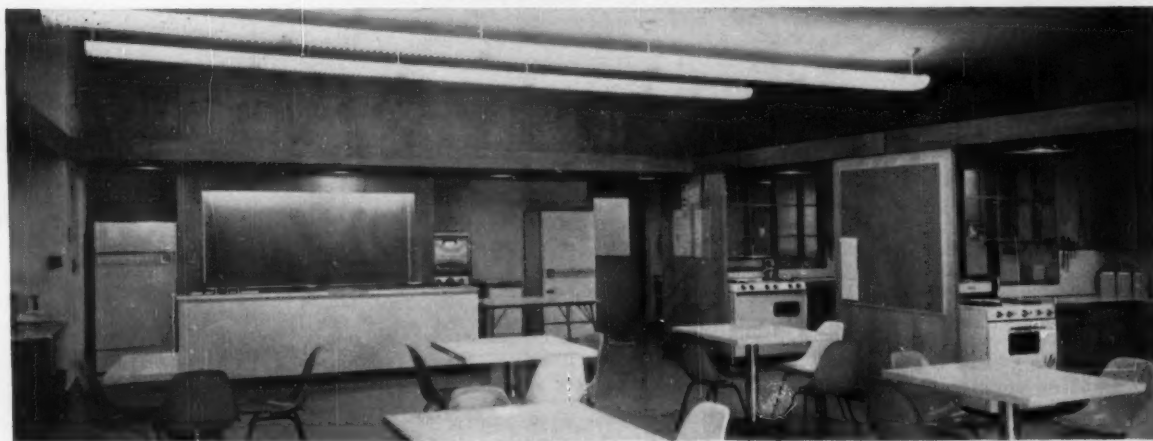
auditorium and a pool could also be added. When bids were taken it was apparent that the third floor could be built, even though its interior was unfinished, within the original budget. This was done and, when Federal funds under Public Law 815 became available, the interior was completed. These funds also made possible the expansion of the building where provisions had been made for an auditorium. A group education facility, expected to be particularly useful for large-group instruction, was designed and was completed in February, 1961. This will also serve as a small auditorium for the school and community.

Thus all three aspects of flexibility, thoughtfully provided for in the original planning, have already been realized.

Facility Relationships and Circulation

The educational specifications also recommended that the proper grouping of facilities, based both upon use and the noise factor, would encourage proper utilization of the new building and result in a satisfactory traffic flow. The arrangements made to accomplish this can be most readily determined by an inspection of the floor plan. In general the academic facilities, which also tend

The foods room of the homemaking suite. The demonstration kitchen is at the left with unit kitchens at the right.



to be more quiet, were grouped in or near the three-story classroom section, semiquiet activities were used as buffers, and the noisier activities were placed as far as possible from this section. Excellent circulation is provided by the rectangular plan, and surge points are provided by the widened corridor in front of the gymnasium and by the student commons which is also the lobby of the auditorium.

Closely related to the classroom section is the instructional materials center, consisting of the library, the curriculum laboratory, and the audio-visual storage and preview room. The reading room, overlooking the landscaped court, is not as large as might be expected, for the educational specifications recommended that each classroom be considered as an extension of the library. To this end each classroom is provided with a book truck. These book trucks, as well as audio-visual equipment and other materials, can be transported to any level by the elevator located beside the staircase at the south end of the classroom section. A reading area can be set up in either the classroom or its conference-workroom, with the perma-

nent classroom collection supplemented from the instructional materials center.

The administrative suite is located beside the main entrance and lobby, where it is easily accessible to visitors and students. The guidance and health service suite is separate from these offices, yet close enough that records are readily available. The music rooms are located near the auditorium, yet not too far from the gymnasium. Art, home-making, and shop are placed together, with the shops on the service drive. The physical education facilities and the cafeteria are placed together, since they have many common uses. All of the facilities on the east side of the court are expected to have considerable community use and this also influenced the grouping. They can be isolated from the rest of the building by folding gates and, through careful location of entrances, used independently of one another.

While the site dictated a compact building, facility relationships and circulation was determined mainly by the principles laid down in the educational specifications. ■

PLANNING PROCEDURES

(Concluded from page 26)

ment its study of the bases for educational planning. In these visitations the committee members reviewed the bases for the local curriculum and considered the relationship between the educational program and the building which housed it.

Encouraged by the favorable vote on the high school proposal, the Secondary Study Committee intensified its work during the summer of 1957 and by August had prepared a report for the board of education. This report listed acceptable objectives of secondary education for Dearborn No. 3 and suggested the types of student experiences which would fulfill these objectives. This laid the foundations for curriculum planning and outlined, generally, the type of curriculum and program proposed for the new high school.

Determining Curriculum and Organization

The Secondary Study Committee then set up a sub-committee, composed of members of the school staff, to work out a complete curriculum and to determine a suitable organizational pattern. The committee also asked Delmo Della-Dora, Secondary Curriculum Consultant for the Wayne County Board of Education,* to work with the new committee which was organized when school opened in September.

By December the committee had rec-

ommended a curriculum providing a two-period block of time for English and social studies in grades 7 through the first semester of grade 12. Mathematics and science were to be required in grades 7 through 9, with additional science required in grade 10 and in the first semester of grade 11. Physical education and shop or homemaking were required in grades 7 through 10; a half-year of business education was also required in grade 10. An interesting requirement was four hours of work experience each day for one semester in grade 12. Recommendations were also made for a number of elective subjects and a K-6-3-3 plan of organization with the upper six grades housed in the new secondary building until mounting enrollments dictate organization of a junior high school elsewhere. The board of education approved the general framework on February 12, 1958.

Preparing Educational Specifications

Now, after 15 months of intensive work, the educational program for the new high school had been developed in sufficient detail to prepare educational specifications for the facilities which would be required. The Secondary Curriculum Committee was metamorphosed into a Committee on Educational Specifications and Dr. Charles Wells, Jr., School Plant Planning Consultant for the Wayne County Board of Education, was asked to work with this com-

*Dr. Della-Dora is now Deputy Superintendent for the same organization.

mittee. Dr. Wells had been attending meetings of the Secondary Curriculum Committee to gain sufficient background for determining the teaching station requirements of the proposed curriculum and the anticipated enrollments.

Plans were made for writing detailed educational specifications for the new school and 12 subcommittees were named to write specifications.

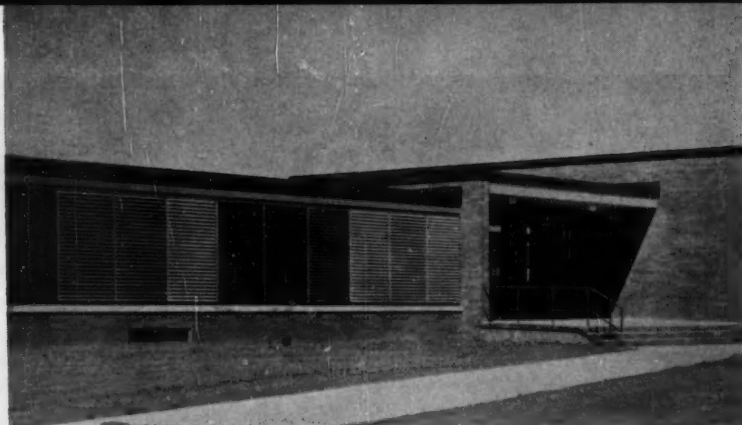
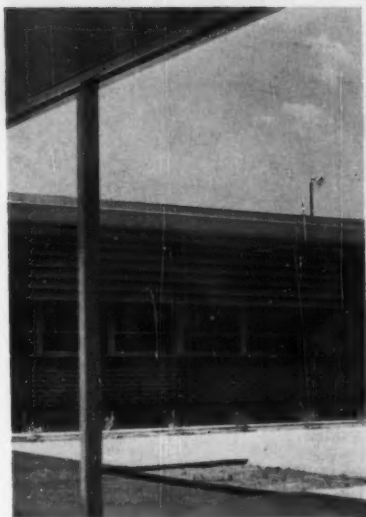
The board of education instructed the architect to submit preliminary plans and cost estimates based upon the educational specifications. A Secondary Building Committee, composed of the members of the Secondary Study Committee and key members of the Committee on Educational Specifications and with Dr. Wells as consultant, was named to work with the architect and to assist the board in its review of the preliminary plans.

Architectural Planning

The architects, Jahr-Anderson-Machida Associates of Dearborn, Mich., had been selected at the time of the bond election and had just completed working drawings for a new elementary school to be built by the school district. Representatives of the firm had attended meetings of the Secondary Study Committee and the Secondary Curriculum Committee to gain background for their work. They and their designer, Yoshizo Machida, who had met regularly with the Committee on Educational Specifications, now began a vigorous attack upon the problem of designing a modern, flexible school with the unique features suggested in the educational specifications. An analysis of these specifications, coupled with a consideration of the restrictions imposed by the small site, led to the presentation of a series of continually refined preliminary plans.

Late in July of 1958 the Secondary Building Committee recommended to the board of education a basic scheme in which the building was arranged about a large central court, with the "academic" suites in a multi-story portion and other facilities in one-story sections. This plan provided that the two-story portion would be so constructed that a third story could be placed upon it and also made provisions for a future auditorium and a future pool.

Then, approximately two years after the warning from the Dearborn board of education, working drawings for the new high school were authorized. The working drawings were completed late in November and bids were opened January 8, 1959. Construction began with the ground-breaking on January 19, 1959, and the major portion of the building was ready for occupancy late in March, 1960. ■



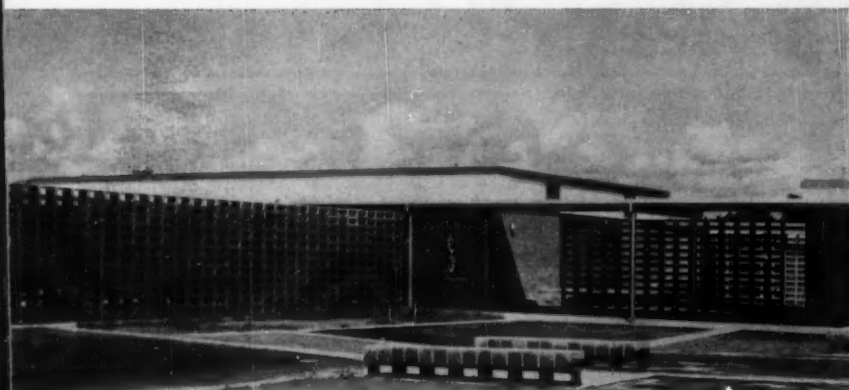
The Fickett Junior High School in Tucson, Ariz., utilized a unit of six metal louvers over the upper half of the courtyard windows, as shown at left.

Windows facing south have complete venetian-blind-type units of metal louvers to control light in the Fairview High School in Boulder Colo., above.

On Sun Control

In addition to the sun control efforts inside instructional areas of new schools — such as blinds, diffusing glass block, etc. — many architects are developing approaches

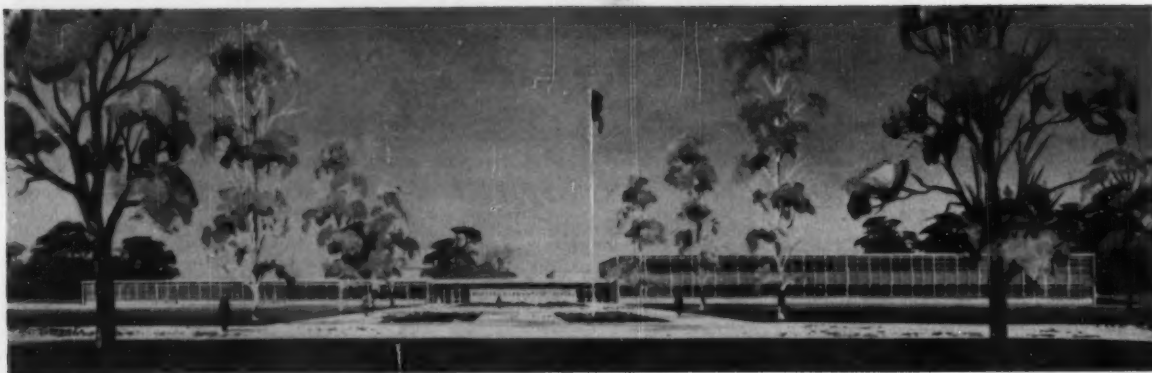
to controlling the glare of sun and clouds through new methods. On this page are illustrated several of these approaches in a variety of materials. ■



In the new High School in Magnolia, Ark., concrete "screens" for exterior corridors sharply reduce unwanted sun glare, as shown above.

Movable, exterior rows of louvers in the Centennial Junior High School in Boulder, Colo., shown at the right, help to cut down on glare.





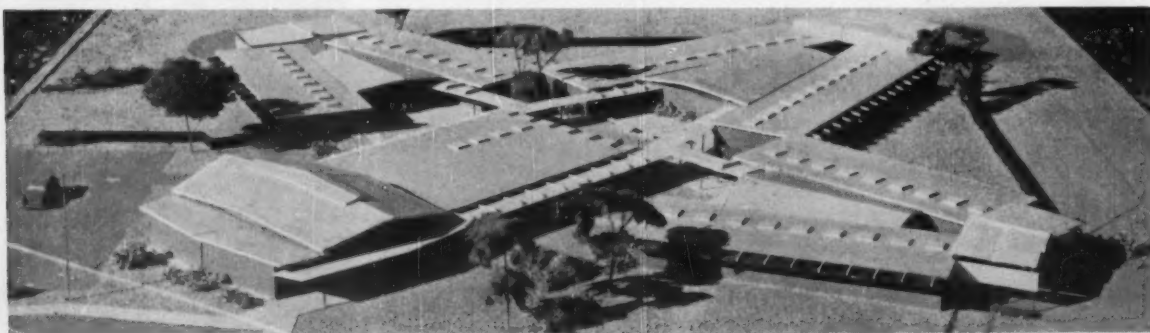
Residents of Seaford, L. I., Union Free School District No. 6, approved a \$2 million bond issue for this 960-pupil elementary school in December. Architect is Frederic P. Wiedersum Associates, Valley Stream, L. I. The school will contain 29 classrooms, three kindergartens, a general purpose room and a gymnasium with boys' and girls' locker rooms and showers. Estimated cost for the 68,700 square-foot building is \$19.50 per square foot.



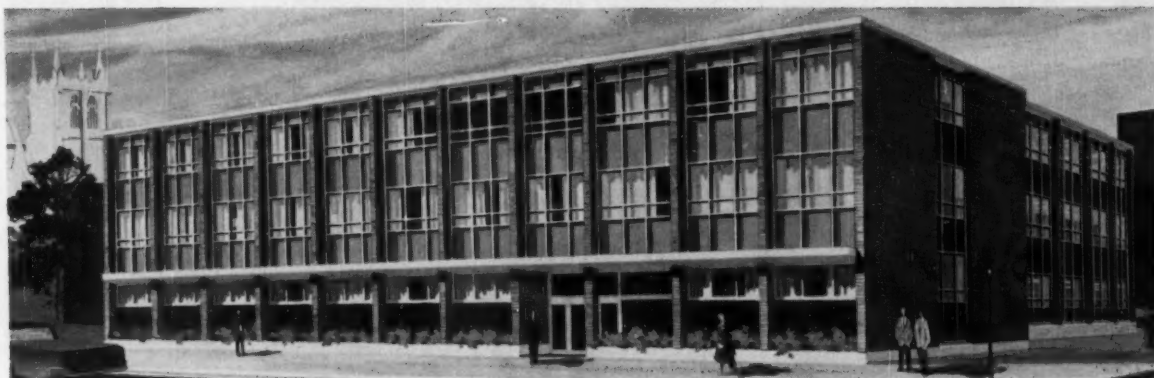
The \$350,000 addition to Roosevelt Elementary and River Forest Junior High in River Forest, Ill., features a gymnasium curtain wall combination of cut stone and color glass blocks in ribbons of red, blue, yellow, and white. The addition, built under the supervision of architects Cone & Dornbusch of Chicago and Supt. W. E. Sugden, contains a library and five classrooms in addition to the gymnasium which doubles as a junior high cafeteria.

Notable New Schoolhouses

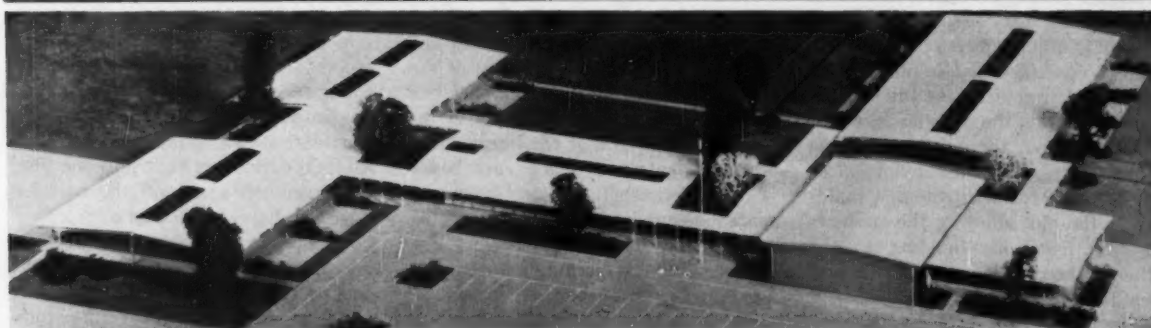
school building
scrapbook



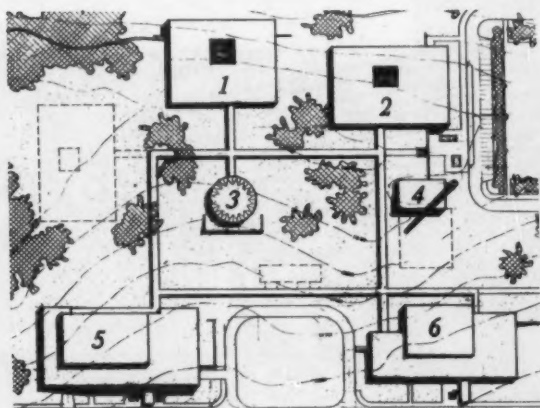
All classrooms and the library in the Spruce Elementary School, Alderwood Manor, Wash., will have skylights with daylight controls for visual aids, drapes, vinyl asbestos tile on concrete floor slabs, and acoustical tile ceilings. All classroom walls will be panelled in rough sawn cedar to facilitate unlimited tacking for displays and teaching aids. Architect Ralph H. Burkhard, Seattle, Wash., designed the 20-classroom school; Harold Silvernail is the school's superintendent.



This new Public Schools Administration Building in Reading, Pa., will be completed on March 15 at a cost of \$704,548. The 3-story structure contains offices and conference rooms for Supt. Ralph C. Geigle, school district officers and their staffs; dental, medical and psychiatric offices and examining rooms; and offices for the heads of the music, art, speech, industrial education, physical education and home economic departments.



The Sherwood Forest Elementary School, designed for kindergarten to sixth grade children, attempts to build confidence by providing a familiar residential atmosphere in a school plant which is simple, economical and practical to operate. Built by architects Lamont & Fey of Seattle, Wash., the Bellevue, Wash., school's capacity is 420 pupils. Project cost per square foot is \$14.04; construction is brick masonry walls with glue-laminated timber roof.



Numbers indicate: (1) academic unit No. 1, (2) academic unit No. 2, (3) library, (4) heating plant, (5) auditorium, cafeteria, art-music, and (6) physical education building.

The Bethel college-campus type senior high school, the first of its kind in operation in Pennsylvania, is to be built in two stages. Phase one, already completed for \$4,368,517, includes two academic units (for 1000 students), library, auditorium-cafeteria, gymnasium and swimming pool. The one-story academic units have 17 classrooms and 18 special and service areas. All buildings are heated from a central power plant. Architects are Altenhof and Bown.

Supt. Ray Claiborne of Wewoka, Okla., explains the design of a contemporary addition to one of the city's junior high schools which was made to harmonize with the existing older building.

Blending the Old with the New: The School Addition

RAY CLAIBORNE

Mr. Claiborne is superintendent of schools in Wewoka, Okla.

A recent addition to Cowart Junior High School in Wewoka, Okla., testifies that a contemporary building can be added successfully to an existing building of an early vintage.

Supt. Ray Claiborne, the board of education, and architect-engineers Hudgins-Thompson-Ball & Associates of Oklahoma City prepared plans for a large addition which would be completely contemporary in its appearance but harmonize with the existing building. Since the addition site was separated from the existing building by a street, it was decided to close the street and connect the new building to the old, allowing the students to pass from one building to the other without being exposed to bad weather.

The connection between the two buildings is a large recreational area which contains concession machines, two large trophy cases (matching the wood-paneled wall) and some lockers. The area connects the major building entrances and serves as the entrance lobby to the all-purpose room.

To maintain the appearance of indoor-outdoor space, the entrances into the commons area were made of floor-to-ceiling glass with accent panels placed just below center to prevent students from walking through the wall. For additional safety, the doors are solid and are painted a bright color to match the panels. A smooth face brick, the color of the exterior brick, is used for most of the interior walls. At the rear entrance the exterior accent wall is also repeated inside so that the interior and exterior entrance spaces are more closely tied together.

The commons area is connected to the existing building by a ramp. Entrances into the building are designed so that they may be used for reception and lounging. Covered by a lighted canopy which reaches to the street, the front entrance is well landscaped. This entrance also features a pierced screen wall of concrete block painted a royal blue. The back entrance, which is heavily used, features a divider wall of contrasting brick located in a planter.

The floor treatment in both the exterior and interior entrance areas and the commons is of red concrete divided by scored squares. The remaining rooms in the building have asphalt tile floors. To make the corridor more than a dim passage, the ceiling is pierced with skylights and the doors to all the rooms off the area are painted a different color. These doors also act as an accent to the color schemes used in the individual classrooms. The walls of the main corridor are of polished brick and contain 62 lockers built into one side. The common area and the corridor together have 100 lockers.

The project includes an all-purpose room (a gymnasium suitable for public spectators with a stage so that it can be used for auditorium purposes), two team dressing rooms, chair and athletic equipment storage. The teaching area includes two classrooms, two toilets, janitor's closet, and a large home economics room.

The construction is of load-bearing masonry walls with metal joists and exposed decking. The decking is of a



Main entrance



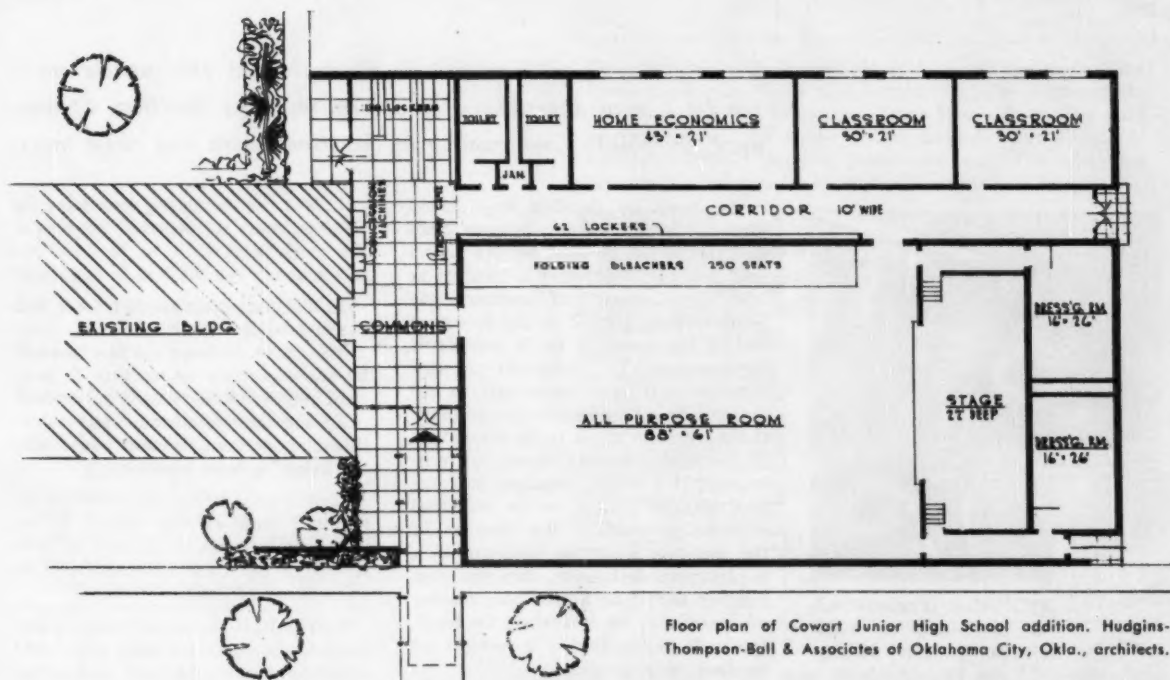
All-purpose room



Main corridor



Playground entrance



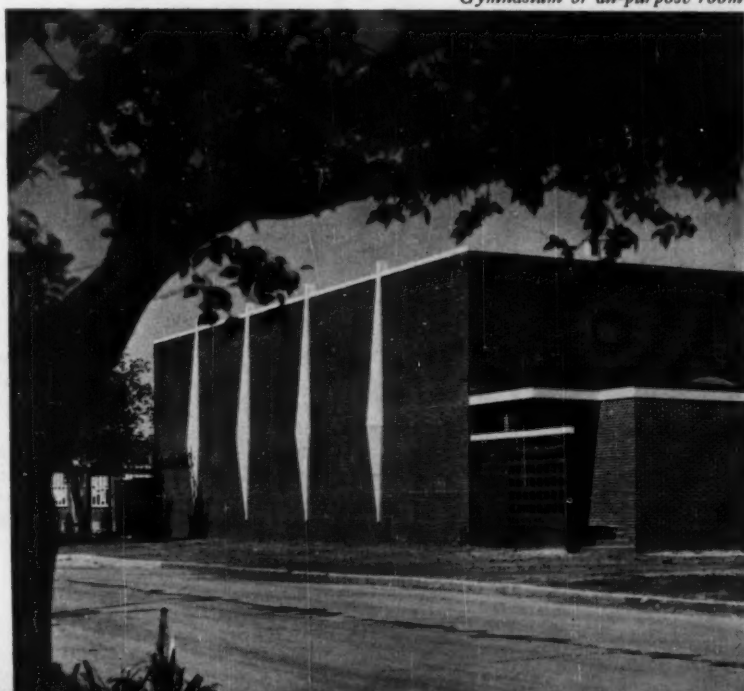
Floor plan of Cowart Junior High School addition. Hudgins-Thompson-Ball & Associates of Oklahoma City, Okla., architects.

fibrous material bound in cement, which is highly fire resistant, has good acoustical qualities, and has been given a soft white finish. The metal joists were ordered with a black, rust-preventive paint which contrasts the black metal lattice work against the white decking and supplies an attractive ceiling. The lighting system is located so that it relates to the grid system of the ceiling and is painted into the metal joists and the ceiling itself.

Most of the exterior walls are constructed of a red brick of the same texture and color as the original building. However, large panels of contrasting Norman brick of a dark blue-black color are used to accentuate the contemporary lines of the building. ■

MARCH, 1961

Gymnasium or all-purpose room



How to Test Classroom Furniture

PATRICK J. WILLIAMS

Testing classroom furniture is illustrated in this article written by a man experienced in determining the function, appearance, durability, and quality of classroom desk and chair units.



Mr. Williams is superintendent, department of buildings and grounds, Burlington, Vt., schools.

We begin by deciding who should test classroom furniture. In most cases this should not be done by one school staff member, but rather a team of at least three school staff members, one being directly related to the in-service use of the furniture to be considered for purchase. The composite of staff members will vary accordingly to the furniture being considered. For example, if library furniture is to be tested, one of the staff members should be a librarian. If it is shop benches, then one staff member should be an industrial educator if possible, the director of the industrial education program. If it is classroom desk units, then one staff member should be a classroom teacher who teaches in the area where the furniture will be used or a supervisor of teachers when possible.

A testing team of three, in most cases, should be adequate to do the job justice. Of this group, one member should be a teacher or a supervisor of teachers, the second a school principal and the third should be the superintendent of schools, or a staff member appointed by the superintendent. This latter person could be an assistant superintendent in charge of business, a business manager, or a purchasing agent. This third person's capacity would, in part, be determined by the size of the school system and its organization.

For What Should the Team Test?

Three very important factors when testing for classroom desk and chair units are: (1) function, (2) appearance, and (3) durability and quality.

Function determines pupil performance; we do not attain pupil performance without applied function.

Two important questions we must ask ourselves about this factor are:

1. Will the unit being considered for purchase meet the expected function at the grade level it is to be used and accommodate the subjects to be taught?

2. Will the pupil's needs be met with the unit being tested?

The above decisions can last be made by the supervisor of teachers or principal and are of the utmost importance.

Testing for appearance, which establishes atmosphere, involves answering the following basic questions:

1. Will units being considered be intermixed with existing units? If so, will they maintain a measure of continuity in the total building furniture replacement program?

2. If this is a new school building project, will the units being considered complement other furniture and equipment being considered or will they clash?

3. Is the design in keeping with accepted modern standards that will be acceptable 15 years from date of purchase?

4. Will the unit offer stimulus for the student's mind or will it promote boredom through its appearance and use?

The use of outdated classroom furniture is a sure way to downgrade the average student's imagination. If the seating unit does not meet standard requirements of appearance, it should be rejected on this fact alone.

Educators have been and are now very concerned about the appearance of the school building, but they have not always projected this concern when considering classroom furniture.

Appearance is not only important to the good of the students, but is equally important in terms of the instructional

staff. In short, appearance suggests attitudes that stimulate the teaching-learning tempo.

Testing for Quality and Durability

Two important factors in testing for quality and durability are: (1) durability of materials used, and (2) the structural soundness of the unit.

This testing should be done by a person well qualified and experienced in this field. This person could well be a superintendent of schools, business manager, superintendent of buildings and grounds, purchasing agent, etc.

A professional testing laboratory service can be used but it is not always readily available. A better procedure consists of having qualified personnel on the staff and use of their services.

Testing for structural soundness can be accomplished in most cases in your school system industrial arts shop.

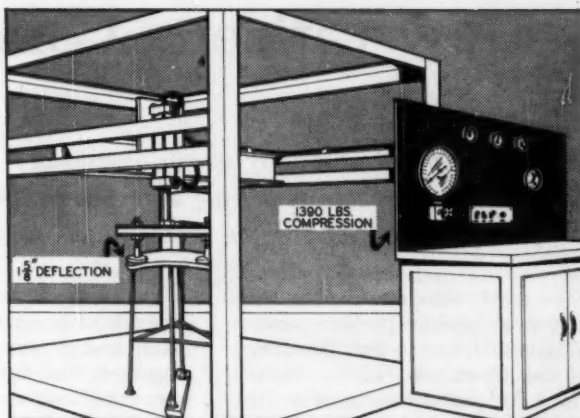
Tools include a mechanical press, a compression gauge, blocks of wood of various thicknesses ($1\frac{3}{4}$ to $\frac{3}{4}$ in.), and two yardsticks.

With the above tools, it is possible to test for torsion and incurvature.

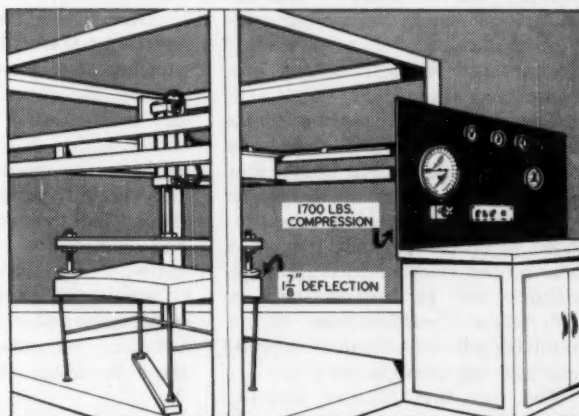
The accompanying diagrams and explanations of each are simple but very effective if procedures are thoroughly applied.

In applying this method of testing, we should be sure that each unit being tested is subjected to the same test to obtain a true analysis of each on the same level.

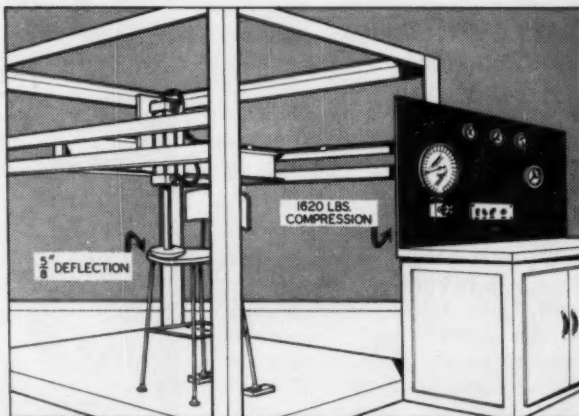
Only through organized, objective, imaginative testing can classroom furniture be purchased at a defensible basic quality. ■



This 18-inch chair with solid plastic back and seat and welded frame is being subjected to a torsion test. The extent of the twist is 1 and $\frac{5}{8}$ " as shown. There should be no breakage in the tubular steel frame or the welded joints or at the attachment points between frame and seat. The maximum amount of pressure to be applied in this test is 1390 lbs.



This 30-inch desk is being subjected to a torsion test. The amount of pressure to be applied is 1700 lbs. The frame and book box should bend but not break. Welds and attachment points should not give way.



This 18-inch chair is being subjected to an incurvature test. The extent of deflection of the solid plastic seat is $\frac{5}{8}$ " as shown. The amount of pressure is 1620 lbs. The seat and frame should withstand the pressure without damage.

How Citizens Committees Can Help

The school board of this Wisconsin community found that its citizens were valuable in solving a familiar problem: Whether to build a new school or an addition to an existing school.

CLINT MCGIRR

In 1954 overcrowded classrooms forced a familiar problem onto a Wisconsin school board. The board of Oak Creek and Franklin District No. 3, Milwaukee County, Wisconsin, had to decide whether to build a new school or to add on to an existing one. To help make the decision, board members invited seven public spirited citizens to attend their planning sessions. The advice, opinions, and facts brought out in these discussions proved so valuable that the taxpayers became members of a permanent group, called the building and sites committee.

Though the board did not realize it at the time, it had established a community sounding board that would furnish important assistance in years to come. The committee provided so much help that the board later formed three additional citizens groups—one to help establish a high school curriculum, one to aid in solving school transportation problems and one to advise on policy.

The fact that citizens' committees have proved valuable cannot be attributed to anything outstanding about Oak Creek's residents. The community is not a fortunate suburb filled with civic-minded matrons bent on good works. It is a sprawling aggregate of farms, factories, and housing developments on the southern edge of South Milwaukee. Its citizens are skilled and semiskilled workers—hard-working, practical people who sacrifice leisure time to serve the community.

No Experience Available

When the board appointed Oak Creek's first citizens' committee in 1954, there were seven elementary schools in the district. The newest building was 20 years old. For the board's first planning session, it could call on no citizens with experience in school construction. Fortunately, the first committee members were willing to make up in work what they lacked in experience.

The county superintendent sent an experienced assistant to advise the board and committee. The advisor suggested that the best thing the committee could do to aid the board was first determine the city's future growth. To do this, committee members reviewed the school census, talked to real estate developers in the area, interviewed city officials and anyone else who might be able to help in the estimate.

After all facts were in, the committee sat down to thresh out a recommendation. After considerable discussion, the committee decided that the board should build a 27-room junior high school as near to the city's center as possible. Board members carefully studied the recommendation and the facts the committee had gathered to support it. They agreed.

The board next asked its own building and sites committee to seek out and recommend architectural firms to design the building. The

committee interviewed several firms, then recommended three of the best. From these three, the board selected the one they felt was best qualified. Then the architect, school administrators, committee members, and board members visited new schools in the area. After the visits, the architect drew up preliminary plans of the proposed junior high school. He revised the plans several times until the committee and school officials were satisfied.

The board asked committee members to attend the meeting at which the plans were submitted to the city council. Many of the questions raised by council members were answered by the committee. Councilmen were surprised and pleased at this evidence of community support. They voted to approve the plans, and the bond issue was placed before the electorate.

With committee members actively campaigning for the issue, it passed. Shortly after, construction began on the first wing of 10 rooms.

This is a meeting of Oak Creek's transportation committee which is discussing school bus problems.



Another Problem Arises

At this time, the board was confronted with another problem. South Milwaukee school officials announced they could no longer accept tuition students from Oak Creek. Since that school had provided facilities for most of the district's high school students, the decision brought the board face to face with the fact that Oak Creek must immediately have a high school.

The board was willing to start planning a high school. But there was the problem of providing classroom space until the new school could be erected. How could they do that, with classrooms already overcrowded? To get the opinion of several people on the problem, the board talked it over with its citizens' committees. From their discussions, board and committee members decided that all 27 rooms of the junior high building should be completed as soon as possible. The architect would have to provide specialized rooms for science, home arts, and shop. In this way, the junior high would serve the senior high students until the new building was completed. All agreed this seemed the best course of action.

But before changing the building plans, board members had to decide what high school courses to offer. Should they provide minimum science instruction, or should they emphasize science and provide elaborate

space? How much shop area would they need? Upon the answers to these and other questions would depend not only changes to the junior high school plans, but also the design of the new high school. To help answer the questions, the board formed another committee, the curriculum committee.

The school principal acted as chairman of this committee. The board appointed people from different walks of life to serve as members. An electrician, a real estate man, a supervisor for the telephone company, a businessman, a patternmaker who had taught vocational school, a tool and die maker, a truck gardener, a farmer, three housewives — these made up the committee.

Curriculum Study Begun

The curriculum committee plunged into its work by studying the records of Oak Creek students who had attended high schools in other districts. From these records they made up a list of courses the students had taken. The committee then met with the secondary curriculum advisor from the county superintendent's office and drew up what they felt was the best curriculum for the community.

Once the curriculum was established, the architect went back to the drawing board. On the basis of the curriculum and the estimated school enrollment, he changed the

plans of the junior high school to include space for high school subjects. Construction began on this new part immediately. By that time, one wing of the new building had been completed, and school officials conducted classes in it while the new wings were added.

About that time, another problem confronted board members. During an open board meeting, a few parents had criticized the school's transportation system. The board, busier than any group had a right to be, again turned to public-spirited citizens for help. It formed a transportation committee to investigate the complaints. Since most of the 1500 students of the district traveled to and from school by bus, transportation was a big job, bound to present problems. The board asked the committee to investigate and make recommendations that would solve the problems.

Some parents had objected to the bus routes. The committee looked into these complaints to see if routes could be improved. Where they could be, it recommended changes. Where they could not, it explained why to the board, as well as to the people who made the complaints.

Road Hazards Eliminated

The committee investigated bus drivers' complaints of hazards such as blind corners and unmarked rail-

(Concluded on page 47)

Much of the planning for the new junior high school (architect's rendering below) was done by citizens committees.



Problems in Administration of the National Defense Education Act

ELAINE EXTON

In the hubbub over efforts to achieve early passage of a general federal school aid measure, it is sometimes overlooked that the year 1961 is also a time for decision about the future of the National Defense Education Act of 1958 whose basic authority will expire on June 30, 1962.

Five-Year Extension Urged

The Task Force Committee on Education which President John F. Kennedy named prior to his inauguration and the Panel of Consultants on the NDEA which outgoing Secretary of Health, Education, and Welfare Arthur S. Flemming appointed before his retirement have both recommended that the various programs of the National Defense Education Act be extended for a period of five years.

In discussing his Consultant's report at a press conference, retiring HEW Secretary Flemming called attention to the importance of having this question acted upon at the present session of Congress so as to provide for an orderly extension and avoid any hiatus in the planning and execution of NDEA programs.

Adding Other Subject Fields?

Of the many current proposals to expand the scope of the National Defense Education Act, one of the most controversial issues concerns broadening Title III to provide instructional equipment for additional subject areas in elementary and secondary schools besides the three—science, mathematics, and modern foreign languages—which were the original focus of this Title to strengthen the National Defense and to encourage and assist in the expansion and improvement of educational programs to meet critical national needs.

The Kennedy-appointed education

task force is silent on the question of broadening the Act to cover other school subjects. Former Secretary Flemming's Consultants, however, recommended that Title III's provisions "be expanded to include English."

The legislative pronouncements of some educational organizations go even farther in the direction of converting the National Defense Education Act, including Title III, into a measure to provide general aid to education.

A resolution of the Division of County and Rural Area Superintendents of the National Education Association's Department of Rural Education, for instance, urges "units of NEA when working with the Congress to attempt to secure amendments to the NDEA . . . that will allow the use of NDEA funds to improve instruction in the language arts and social science."

The Council of Chief State School Officers has approved resolutions favoring the amendment of Title III "to include English, history, geography, economics, and government" and "an authorization of not less than \$85 million annually" to provide for this expansion (as compared with the present law's authorization of \$70 million annually for the three subjects named in the original act).

Title III of the National Defense Education Act was specifically designed to provide financial assistance for strengthening science, mathematics, and modern foreign language instruction to, as the law's policy declaration states, "correct as rapidly as possible the existing imbalances in our educational programs which have led to an insufficient proportion of our population educated in science, mathematics, and modern foreign languages and trained in technology."

However, some educators who are fa-

miliar with the operation of the act maintain that to discuss spreading NDEA aid to other subject fields is academic since in actual practice National Defense Education Act funds which are returned to the states under the reimbursement schedules in state plans are being used for all school subjects now and have been from the beginning.

Two highly-placed Office of Education officials in the Aid to State and Local Schools Branch, which administers Title III, admitted to this reporter that this possibility exists, since for the most part the federal funds allocated to the states are considered to be state funds and there is no stipulation in the Act as now written governing the use of NDEA money returned to the local school districts by the states.

However, the extent to which NDEA funds are being used or have been used for the support of subjects other than those specified in the Act is not known by the officials of this Branch since this would necessitate making federal audits of local school budgets and thus raise the specter of federal control.

A Puzzling Practice

It is thought that in the majority of cases in order to meet the matching provisions of the Act, local school districts have submitted projects for state approval which call for expenditures twice as large as they usually make for purchasing science, mathematics, and foreign language equipment. Thus, their federal re-imbursement has enabled them to double the amount of money they would normally have available for this purpose.

It is possible, however, for schools which have sufficient local resources to meet their equipment needs in the three subjects eligible under Title III to seek Title III funds and after their project claims have been approved use the amount of their federal reimbursement for other curriculum areas.

For example, a local school system which normally spends \$20,000 of its own money for the purchase of science, mathematics, and/or foreign language equipment can submit a project for this amount to the state education agency for approval. After the formalities of having its project declared eligible by the state have been completed and the school district has placed its purchase orders and filed its claims for federal re-imbursement with the state, the state can pay the school district as much as \$10,000 of federal money if it finds its claims in order.

This \$10,000 federal subsidy plus the \$20,000 available in the local budget for science, mathematics, and modern foreign language equipment provides the local school district with a total of

\$30,000 for this purpose. However, it may decide to use only \$20,000 of these funds to purchase Title III equipment and choose to spend the remaining \$10,000 as it sees fit, possibly on other subject areas.

Opinions differ as to the legality of this procedure. Some officials of the U. S. Office of Education concede that it would be a violation of the spirit of the National Defense Education Act but say there is nothing in the language of the law which would make it illegal. Still other educators consider such actions to be illegal.

How then is this practice possible? Does it result from defects in the law itself, in the regulations set up to administer the Act, in some of the state plans? Or, is it due to misinterpretations of the actual intent of Congress by officials at all levels?

Questions such as these will doubtless be of interest to the Congressional Education Committees considering the future of the National Defense Education Act and how to improve it. It is likely that they will also want to find out the states in which this has been happening and the extent to which the practice is being carried out. Such a review appears to be a prerequisite to any Congressional consideration of whether to extend the law since no published reports have been issued on the operation of this phase of the Title III program.

Useful Publications Held Up

Moreover, while an abundance of promotional literature has been prepared and distributed about Title III activities, information on some other significant aspects of the operation of Title III is also lacking.

Two useful studies providing basic data that could have led to program improvements have been held up for months in the office of the Director responsible for the federal administration of this Title.

The first of these studies, a content analysis of the original state plans for Title III approved by the U. S. Office of Education, was completed in October, 1959, by Ralph Frazier who was at the time a Specialist in the Science, Mathematics, and Foreign Languages Section of the U. S. Office of Education's Aid to State and Local Schools Branch.

This presentation of the administrative provisions in the various state plans in the early months of the Act's operation, for example, the priorities established for school projects, the equipment standards which were set up, the qualifications required for state supervisors, and other topics would have afforded state officials valuable knowledge about Title III procedures in other

states from which they could have derived ideas with helpful implications for their own situations. It would also have furnished bench marks against which to measure later changes in their programs.

The Library Services Branch of the U. S. Office of Education, for instance, has published an annual brochure on *State Plans Under the Library Services Act* since the beginning of that program because, as the foreword to its first volume explains: "The compilation of summaries of State plans and programs submitted for the first year of operation under the Act was undertaken at this time so that everyone interested in public library development might have the benefits of the thinking and planning which has gone into the development of the plans and programs. . . . Changes will, of course, be made in these State plans during subsequent years as a result of experience and further planning, but here is the first major blueprint for a State-local-Federal co-operative program for public library development."

Substitute the term Title III for the phrase "public library development" and the above justification would seem equally pertinent with respect to the desirability of releasing periodic reports on the state plans for Title III.

The second study—an analysis of the expenditures of Title III funds on the acquisition of equipment and materials and minor remodeling for five states during the first fiscal year of operation, namely, Maine, Connecticut, Pennsylvania, Georgia, and Tennessee—was undertaken to develop a technique which the states could use in analyzing their own expenditures for Title III equipment which would yield comparable data from state to state.

The field work was carried out by Donald Walker, then a Research Assistant in the U. S. Office of Education's Science, Mathematics, and Foreign Languages Section for the Title III program under the supervision of Herbert A. Smith, the Chief of the Section.

When they both left the program in August 1960 for other positions the essential information from the five states had been incorporated into 50 basic tables. Had either of these two men been brought back, as recommended, for an additional week or two, the narration of how the data was collected and coded on punch cards for use in data processing machines and a statement of the conclusions reached could have been completed promptly and the results by now could have been in use in the various states and could have been made available to the Panel of Consultants appointed by retiring HEW Secretary Flemming to make recommendations about the NDEA program.

Placement of Generalists

Situations like these raise the question of whether the present administrative set-up, although successful in getting the Title III show on the road, has gotten as much mileage as was possible from the funds expended.

They recall the apprehension voiced at the outset by seasoned educators over placing in charge of the Office of Education's Aid to State and Local Schools Branch which was given responsibility for the NDEA Title concerned with strengthening science, mathematics, and modern foreign language instruction a generalist whose main subject-matter teaching and supervisory experience was in industrial arts, an area outside the three curriculum fields involved in this Act.

The advisability of putting generalists into top administrative positions over subject fields in which they have had little or no direct experience needs close scrutiny at this time. This is important because of the current efforts to broaden the National Defense Education Act and to reorganize the whole U. S. Office of Education.

In regard to the reorganization, some of its high-ranking officials have recommended that the Office be restructured into a series of Divisions, each responsible for a different subject-matter area and each headed by a generalist (with the rank of Assistant Commissioner of Education) who would direct teams of subject-matter specialists ranging from elementary school grades through college graduate levels.

This is the thesis of some of the position papers submitted by Office of Education officials to a study group of O. E. staff members which former Commissioner of Education Lawrence G. Derthick named in early October to develop "a clear cut and balanced statement of the mission of the Office of Education as it can be seen now for the coming decade" and "a reasonably detailed outline of the organizational structure of the Office which would be most conducive to the effective and efficient accomplishment of that mission."

One such paper declares: "Office of Education leadership must stand on a firm foundation of permanent specialist teams, led by generalists of national stature . . . I am aware of the fact that we now have, in the Office, a nucleus of such leaders and such teams. But we need more of both. We need them on long-range and not crash programs. We need them on an integrated and not a compartmentalized basis. Let me try to illustrate with one example.

"Suppose the national preoccupation with science diminished some day and we have a resurgence of interest in the

(Concluded on page 46)

the editorial stand

THE CLASSROOM SHORTAGE

FIGURES released by the U. S. Office of Education about January 1, 1961, indicate that the shortage of classrooms has risen by 6900 over the autumn of 1959 and now stands at 142,100. The shortage includes 66,100 rooms needed to relieve overcrowding and 76,000 to replace unsatisfactory facilities.

Public school enrollments have risen in the year to a record 35.3 million pupils, an increase of more than a million over 1959. Enrollments in the grades are estimated at 24.5 million, and in the high schools at 11.8 million. Growth in the colleges and other post-high school institutions has been in proportion.

The U. S. Office reports some 1,685,000 children on part-time in elementary schools and secondary schools, an increase of 122,000 over the 1959 total. The number of rooms built in 1959-60 was 69,400, about 2700 less than during the peak year of 1957-58. Some 69,600 classrooms are under construction or are scheduled for completion during the present school year. The 1960 expenditures for school construction purposes were about \$2,794 million.

The only encouraging aspect of the situation is the growth in the number of teachers holding standard certificates. Substandard teachers dropped by 6500 or 5.6 per cent, leaving 91,000 such teachers, or 6.5 per cent, still employed in the schools.

During 1960 the total of school bonds issued amounted to \$2,048,136,753. The per cent of approvals was about 73 per cent and was less than the per cent of approvals for health and welfare, water and sewer, and several other minor municipal purposes. In dollar value the total school bond issues have arrived at a new high. The percentage of failures, however, gives cause for some concern and suggests the need for school board action on several fronts.

In the local communities there is more than ever the need for securing general support of school bond issues. The local Chambers of Commerce are more than ever taking credit for helping the public schools—the upcoming ballots for school bonds provide a challenge for proving that these business organizations really stand behind the boards of education in supporting needed bonds.

On the state level there is need in many states for a re-examination of the limitations placed on the maximum of bonds which school boards may issue. Generally, the state governments are failing in their support of local school bonds through the purchase of such bonds for the permanent education funds for teachers' pension and other state funds. Even such limited help by the state education departments as expert guidance in holding bond election campaigns and marketing bonds would be a boost of considerable consequence.

On the national level the recent Eisenhower administration offered ideas for federal purchase of local school bonds and guarantees of interest payments, all of which were ignored in the campaigns for direct aid for teachers' salaries and schoolhouse capital outlays. It will be worth while for the state school board associations to study and restate their position on federal aid at least so far as needed school construction in substandard school districts is concerned.

STATE SUPERINTENDENTS

THE experience of the governor of the state of Oregon in appointing Leon P. Minear, principal of the Benson Polytechnic High School, Portland, to the office of state superintendent of public instruction, to succeed Rex Putnam, longtime incumbent, points to a weakness from which a considerable number of state superintendencies suffer. Mr. Minear in accepting office suffered a pay cut from \$12,250 to \$11,500.

In Oregon as in a considerable number of states, the chief school executive receives considerably less salary than the city superintendent of one or more large cities in the state. And his office is subject to the hazards of a popular election or, worse still, to partisan appointment by the governor or a politically-controlled state board.

It is to the credit of the great majority of state commissioners of education, or to use the older term state superintendents of public instruction, that they are dedicated men who accept the hazards of state political office and a salary lower than they deserve in order to serve the schools of their states. The chief state school officers of the fifty states hold key posts in American education under difficult conditions for which they deserve high praise and due respect.

A TAX LOOPHOLE?

THE favorable interest rates enjoyed by school bonds constitute one of the reasons why committees are willing to vote favorably on this form of school plant financing. It is the tax-free feature of school bonds that, quite as much as the financial reputation of the communities, which issue them and the long record of unfailing payments of principal and interest, has helped keep the interest rate at the present low point.

It was disturbing to have Prof. John Kenneth Galbraith, top economic advisor to President Kennedy, state in an interview printed in the U. S. News and World Report for November 21, 1960, "that tax exempt state and local bond issues are one of a number of tax loopholes which cause a loss to the federal government and should be eliminated."

In discussing Prof. Galbraith's unwise suggestion, the "Bond Buyer," on November 28, 1960, commented:

It must be rather galling to State and local officials caught in a steadily tightening revenue-expenditure squeeze and bumping against debt ceilings to have the tax-exemption of municipal securities lumped together with expense accounts and oil depletion allowances as "tax loopholes."

To his credit, Professor Galbraith acknowledges that removal of this tax-exemption would complicate the already serious problems of local governmental units. Why then add to these woes? It must be done, according to Professor Galbraith, in the interest of realizing the goal of tax equality for all. However, ever since the enactment of the Sixteenth Amendment one man's tax equality has been another man's discrimination. This is not likely to change.

Moreover, the argument that tax immunity tends to vitiate the effect of progressive taxation is not borne out by the facts. Although individuals are the largest single class of holders of municipal bonds, at no time since 1941 has the portion held by individuals exceeded 45 per cent of the total outstanding. In fact, in 1958 individuals placed only 4.6 per cent of their gross savings into State and local bonds.

In the aggregate, the purchase of municipal bonds by wealthy individuals has been moderate. So much so that the Investment Bankers Association has deemed it advisable to institute a program of educating the public in the merits of these securities.

Acknowledgement of the hardship which removal of tax-exemption would impose on State and local governments invariably carries with it the offer of Federal government subsidies. Even if some genius could devise an equitable system of calculating and disbursing such subsidies it would probably cost the taxpayers two dollars for every dollar they got back in aid. One is tempted to ask why not leave well enough alone?

The True Value of Any "Teaching Machine" Is Based Upon the Programmed Material That Goes Into It

"Machines do not teach. Programming is the key to this new and rapidly developing medium of instruction. No so-called 'teaching machine' is any better than the program that is prepared for it. The danger is that technology — the over-emphasis on 'hardware' will mask program inadequacies and encourage superficial programming procedures. In fact, present testing of these materials has been accomplished with simple, easy-to-use, inexpensive binders which take the place of a machine. Unless course content is handled by the very best subject-matter specialists, working with experienced experimental psychologists, the final result is likely to be inadequate.

"EBF believes that there are certain ingredients that are essential to the preparation of effective programs. The materials must be prepared on the basis of sound psychological procedures. They must be thoroughly tested under classroom conditions and the results measured against recognizable and widely-used criteria. The testing must provide feedback that is incorporated into the final version of each program, and further provision must be made for continual revision and improvement based on this feedback.

"We have established a center for continuing research into learning and motivation and the production and testing of programmed instructional materials. Now we begin to report to you on developments at that center. We hope you will find this report, and the others that will follow, helpful in shaping your plans for programmed instruction."

Maurice B. Mitchell, President
Encyclopaedia Britannica Films

Encyclopaedia Britannica Films,

in co-operation with the Britannica Center for Studies in Learning and Motivation is engaged in a series of large-scale research projects to investigate the potential of programmed learning for use in elementary and high school systems in the United States and Canada. We feel we should now report on this activity to school administrators and educators generally, all of whom are aware of the current activity in this rapidly developing field. (We will not therefore go into programming and other techniques that are involved. If you would like details on this specific area of activity, we invite your inquiry.)

We are currently testing eight semesters of programmed material in the area of high school mathematics. These tests involving almost 5,000 students in school systems in five separate geographical areas are intended to provide answers to various questions about programmed learning. Every effort is being made in these tests to use research, control, and systems that will provide useful and significant information. In essence, this information will be as applicable to any field of study as it is to the study of mathematics.

These experimental studies are, in each case, under direct supervision of an experimental psychologist who is either a research professor in a nearby university or, in one case, a leading research psychologist for a large aircraft company.

The specialists, working in conjunction with the local school administrators, are now engaged in assessing the manner in which programmed material can most effectively be utilized in connection with the high school curriculum.

One very important aspect of programmed learning

is that the material is broken down into small steps which are organized in a systematic fashion to give the student an understanding of the basic structure of the subject matter. This breakdown, which is done by an expert in the field, enables the student to understand the material that he is dealing with, rather than simply to memorize it.

A second extremely important feature

of programmed learning is the fact that the student receives immediate knowledge of results . . . reinforcement. At every step of the learning process the student is asked a question concerning the material that he has just assimilated. This makes the student an active participant in the learning process and, through immediate knowledge of results, gives him the kind of reinforcement that plays an integral part in the learning situation.

The third important characteristic

of programmed learning is that each individual is allowed to go at his own pace. This means that the bright student can move very rapidly, and the student with less ability can take the time necessary to adequately comprehend the material. By ending the typical lockstep process of the traditional classroom situation, the teacher is free to give the kind of individualized instructions that are so important in the teacher-student relationship.

A series of reports is being regularly released . . .

The first report on programmed learning materials is now ready. If you did not receive it within the past few weeks, write us and we'll be pleased to send it to you—Ask for **TEMAC** — Programmed Learning Materials—Report No. 1.

Report No. 1 gives specific answers to many of the questions that you as well as other educators and parents are asking: "Just what is a 'Teaching Machine'?" . . .

TEMAC is the name given the results of the work we are doing in the field of programmed learning. We believe **TEMAC** will become the standard for all other developments in this important area.

If you are not now on our list to receive additional information, be sure to write:

Raymond P. Kroggel, Vice President,

PROGRAMMED LEARNING MATERIALS

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"What part does the teacher play when programmed instruction is used?" . . . What can we expect in the way of speed and performance on programmed material?" . . . "How will I like programmed material as compared to conventional teaching?" . . . "How much will this programmed material cost?"

The following courses are now being prepared, and some will be ready for the 1961 school year:

First-Year High School Algebra
Plane Geometry
Second-Year High School Algebra
Trigonometry—Solid Geometry

Introductory College Mathematics:

Unit I—The Language of Algebra:
Fields and Ordered Fields
Unit II—College Trigonometry (Feb. 1, 1962)
Unit III—Analytical Geometry (Feb. 1, 1962)
Introductory Calculus I
Introductory Calculus II
Intermediate Calculus
Differential Equations

Three-Year High School Language Courses:

French—Programmed in Units A, B, C
Spanish—Programmed in Units A, B, C
German—Programmed in Units A, B, C

The program for the language course has support from a Carnegie Corporation grant to Hollins College.



Mr. C. H. Pygman, Superintendent of Schools,
District No. 89, Maywood, Illinois, says:

"With Honeywell thermostats students stay alert



Superintendent of Schools C. H. Pygman, in one of the classrooms in Jane Addams Elementary School. A Honeywell on-the-wall thermostat helps students get more out of classwork.

on the wall, our and eager to learn"



JANE ADDAMS ELEMENTARY SCHOOL
Architect-Engineer: Kefer & Cronin, Chicago
Mechanical Engineer: Albert W. Marshall, Chicago
General Contractor: Louis Macro Co., Melrose Park, Illinois
Mechanical Contractor: Tropic Heating Co., Broadview, Illinois

**Honeywell Round thermostats keep every classroom
 in Jane Addams Elementary School comfortable regardless
 of the weather or student activities!**

"Proper temperature is an important prerequisite to learning," says Mr. Pygman. "Students find it difficult to concentrate when they are uncomfortable. Honeywell thermostats on the wall of every classroom make sure the temperature is always just right for maximum learning."

In schools, the wall is always the best place for the thermostat. On the wall, it feels the temperature in the classroom the way students do. It is also more convenient to read and adjust to offset varying effects of weather, occupancy and student activities.

Honeywell on-the-wall thermostats not only assure more take-home learning, they also help keep fuel bills at a minimum. They call for just enough heat to maintain temperatures at the precise level selected. There is never any wasteful overheating. And thermostats in classrooms not in use can be turned down to further reduce expenses.

You can depend on Honeywell to recommend the best possible temperature control system for your school because only Honeywell makes all three types of control systems—pneumatic, electric and electronic. And you'll find Honeywell's 75 years of experience good protection for your investment. For further information, call your nearest Honeywell office. Or write Honeywell, Dept. AJ-3-171, Minneapolis 8, Minnesota. In Canada, write Honeywell Controls, Limited, Toronto 17, Ontario. *Sales and Service Offices in all principal cities of the world.*



This is the Honeywell Round, the world's most popular thermostat. It enables teachers to adjust temperatures to fit specific learning activities.

Honeywell



First in Control

SINCE 1885

WASHINGTON

(Concluded from page 41)

section, even begin to deal with the national interest in a thousand facets of painting, music, and drama? But I think the arts are going to call ultimately for a team approach across the board from elementary through graduate school, with expert spade work by specialists in the areas of curriculum, facilities, and staffing."

Perhaps the greatest drawback in placing a generalist over specialists in academic disciplines outside his field of competence, as exemplified in the ad-

ministration of Title III, has been its failure to attract and hold top-notch professional people in its Science, Mathematics, and Foreign Languages Section.

The full complement of professional positions called for in the original plans for staffing the Title III subject specialist unit has never been achieved. As this article went to press early in February three foreign language specialists, two educators assigned to science, and one mathematician manned these posts.

The roster of nationally-respected professional personnel who have already left this unit, in addition to Herbert A. Smith, the Section Chief, Science Spe-

cialist Ralph Frazier, and Research Assistant Donald Walker previously mentioned, includes Kenneth Mowrey and Matthew Brennan, Science Specialists, Milton Beckmann and Ella C. Marth (Mrs. Daniel W. Snader), Mathematics Specialists. Some have not yet been replaced, still others have been succeeded by less qualified persons.

For the most part those who have left attribute their departure to restrictions and frustrations of Government service that they found unbearable as they existed in this Branch. Among their complaints: Their authority was not commensurate with their professional responsibilities. There was unwarranted administrative interference and objection to matters that were strictly professional with the result that they could not carry out their professional duties effectively; the professional staff was too often short-circuited by top-side decisions arrived at without seeking the professionals' judgment.

Further complicating the situation is the fact that for the most part the subject-matter positions established in the Science, Mathematics, and Foreign Languages Section of the Aid to State and Local Schools Branch duplicate the Science, Mathematics, and Foreign Language specialists jobs in the Instruction, Organization, and Services Branch headed by J. Dan Hull which have been a regular part of the Office of Education staff for many years.

In September, 1960, after the exodus of professionals from Title III jobs, it was verbally agreed at a meeting between the Director of the Division of State and Local School systems and the chiefs of the two Branches involved that the functions relating to the strengthening of science, mathematics, and foreign language instruction at state and local levels would be turned over to the Instruction, Organization, and Services Branch, but this decision has not yet been fully implemented.

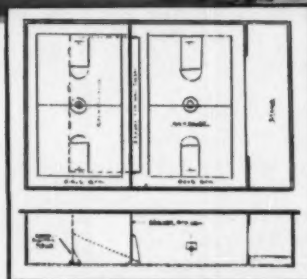
To cite an example of the confusion that is engendered by this dual type of operation, when the regular Office of Education specialists are invited to participate in out-of-town workshops and conferences for the improvement of Title III subject areas, their travel and per diem expenses must be paid for by the requesting agency.

For performing similar activities, the expenses of the science, mathematics, and foreign languages specialists employed in the Aid to State and Local Schools Branch are paid with NDEA money. Some state and local education officials unaware of this distinction fail to request these consultative services from either group if they cannot provide the travel money, with the result that the usefulness of these Office of Education specialists is curtailed. ■



A WALL THAT MOVES! ... solve your gym dividing problems as EARLHAM COLLEGE does ...

Now with a turn of a key you can solve your gym dividing problems. Illustrated above is the Berlin Wall with forward fold operation ... 80' 0" long and 24' 0" high ... It moves to open an 800 seat folding spectator seating area—20 rows high. By reversing the OMEGA electric drive and closing the EZ-A-WAY folding gym seats, two gymnasiums are created. It is a simple and easy operation, designed to provide maximum use of all available floor space. This unit is located in the center of a large field house.



TRUEBLOOD FIELD HOUSE
EARLHAM COLLEGE
RICHMOND, INDIANA
Baxter, Hodel & Donnelly
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• **UNIQUE DESIGN** combines EZ-A-WAY Gym Seats, OMEGA Electric Drive and a partition wall to solve gym dividing problems.

• **ECONOMY** is gained in this combination by eliminating the need for costly folding partitions, that require special structural provisions in the building itself.

• **SAFETY** is evident, since the wall is solid enough to mount a 6' 6" extended wall-attached backstop as a permanent fixture. (see picture above)

• **ACOUSTICAL** values can be improved by the type of panel used. Sound control may be improved by the use of large pane doors at each end.

Write for complete details and engineering data for your requirements.



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HOW CITIZENS COMMITTEES CAN HELP

(Concluded from page 39)

road crossings. The committee took pictures of these and gave both pictures and recommendations to the board. The board asked the city council to work toward getting signals erected at the unmarked railroad crossings and to eliminate some hazards by mowing weeds and trimming trees at intersections. The city co-operated to the fullest extent.

Like the members of other committees, the transportation committee members perform a specific function. However, all committee members also serve as neighborhood spokesmen for the school board. Anyone who has served on a committee can cite scores of times he has corrected neighbors and friends who unwittingly made erroneous statements about some part of the school program.

One lady committee member became so irate at an incumbent alderman who made such statements that she actively campaigned against him. She called on friends and neighbors in her ward, warning them of the dangers of electing an alderman so misinformed. The alderman was defeated.

Another good result of the committees is that members become more interested in civic affairs. One ex-member of the building and sites committee entered politics, won a seat on the Oak Creek common council. Two other committee members now serve on the school board. Other members have become active participants in PTA. All have become neighborhood boosters of the school program.

Superintendent Frank Keller sums up the effect the committees have had on the district. "Because of the work of committee members," said the veteran schoolman, "we have never had a bond issue defeated in Oak Creek. The city council has given full support to our budget. Good school programs have been defeated in other districts because the voters were not properly informed. Usually this happens because the board members just do not have time to explain the program in detail to the people. The big difference in Oak Creek is that committee members do the job for the board."

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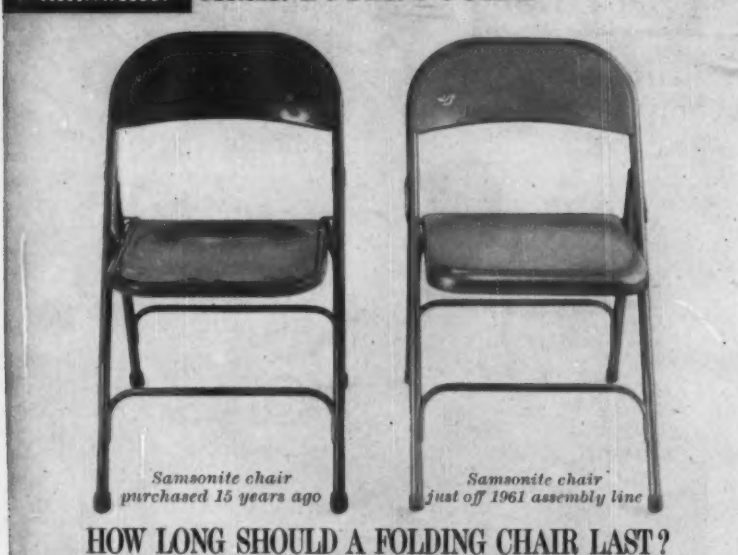
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Samsonite CHAIR BUYER'S GUIDE



HOW LONG SHOULD A FOLDING CHAIR LAST?

The chair on the left was one of the first made by Samsonite—bought in 1946 by American Legion Post 190, Detroit, Mich.

After 15 years of use at meetings, dinners, etc., this chair (with 299 others by Samsonite) is still used, still sturdy, still comfortable. What is Samsonite's big secret?



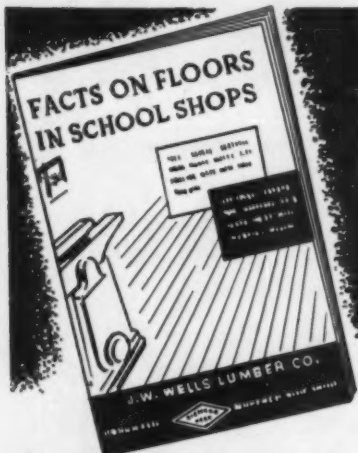
For church, school, club, other group seating information, see your Yellow Pages or write: Shwyder Bros., Institutional Seating Division, Dept. AJ31, Detroit 29, Michigan.

Electrically welded tube steel. Arched cross braces. *Bonderizing* for rust resistance.

These chairs are engineered for years of service. How many years? Ask Legion Post 190. Though one of their original 300 chairs needed a minor adjustment, they haven't had to replace a Samsonite chair yet.

Samsonite

FOLDING CHAIRS



New, reliable, useful now, this is a summary of reports from superintendents of 57 major school districts on the kinds of floors they now have—floors they prefer—for each of 8 major shop areas, wood-working, metalworking, printing, etc. (Survey made by Industrial Arts & Vocational Education Magazine, 1959.)

For courtesy copy, WRITE—

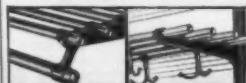
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Holds 72 coats and hats

Wheels as readily as a small service cart. The Vee-P rack unfolds into a rigid 6' 6" long unit holding 72 coats and hats. Scientifically counter-balanced so that it can be set up literally in seconds and fold down for storage as easily as an umbrella. Built of square tubular steel with double hat shelves of closed-end aluminum tubes supported by cast aluminum brackets. Plated to assure permanent beauty. Quality in engineering, construction and finish. The most efficient equipment yet developed for dining and meeting rooms, stand-by equipment, etc. . . . for wherever the "load" varies.

Write for Bulletin VP-206



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No. VP300 has anchor coat hooks below hat shelf.

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Rt. 83 and Madison St.
Elmhurst, Illinois

AUTOMATION IN SCHOOL ACCOUNTING

(Concluded from page 19)

ations you begin to understand each individual's job and the related problems; details then become organized and related to the operation of a data processing system; then the rough manual can start to take form; step by step affected people must be brought along in the structure of this manual. The discipline of an effective data processing system begins to be felt. Certain basic policies of the organization may need to be revised. Certainly old habits and forms become casualties. Finally, your manual is in form so that effective machine programming can begin.

We shall not go into the technical phases of programming, but next let us go to the day of installation when the planning and work is tested.

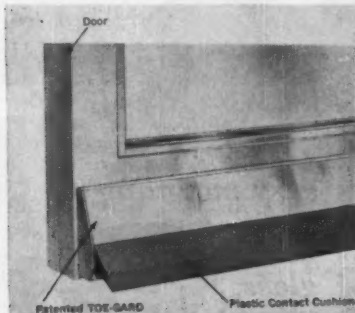
In programming a computer, these programs are "debugged" and tested before they are placed into operation. The test of your work is more on the subject of your feasibility studies and prediction and your ability to get people to do what they must do under the new system. You must be alert to the impact of changing work load from one desk to another and adjust to these changes quickly. Usually internal responsibilities are changed, and therefore your organization must be changed accordingly. The big test, however, is your ability to get people to do what they must do. In this area is where your preliminary work in bringing people along pays big dividends; you will find many human errors becoming apparent—many due to the change of forms and procedures but many also that always occurred but under a manual system went unnoticed or if noticed were usually corrected in leisure by the person making the mistake. In an integrated electronic data processing system the evidence of errors centralizes in one place—in the data processing center.

In this fast moving world, the pace our future generations move in competition with the rest of the world is largely to be determined by the effectiveness of our educational system today. Certainly it cannot be expected that the instructional part of our educational system be geared to meet the atomic age and the business and accounting departments remain loyal to "Old Dobbin."

NEW PRODUCTS

ACCIDENT-PROOF DOOR GUARD

This new Toe-Gard protects against toe and foot injuries caused by public carelessness around automatic doors. Made by the Dor-O-Matic Division, Republic Industries, Inc., Chicago 31, Ill., the guard is attached to the bottom rail of automatically operated doors. When the guard's



For Automatic Door Openers

plastic cushion contacts an object in the door's path, the door stops and backs away a short distance from the obstruction, then resumes the opening cycle. The guard can be applied to metal, tempered glass, or wood doors equipped with the Dor-O-Matic operators. It can be adapted to some other types of automatic door operators. (For Further Details Circle Index Code 041)

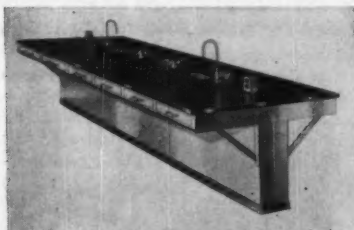
ADJUSTABLE SCAFFOLD BASE

A new base for aluminum telescoping work platforms adjusts safely for use on stairways, ramps, and other irregular surfaces. The Tallescope base includes telescoping outriggers and instantly adjustable legs. The unit reaches heights to 32 ft. Send for information from Up-Right Scaffolds, Berkeley, Calif.

(For Further Details Circle Index Code 042)

STUDENT LABORATORY TABLE

Modular Labconsole tables offer unobstructed knee space which contributes to good posture and comfort. Lab tables are securely anchored to the floor making them



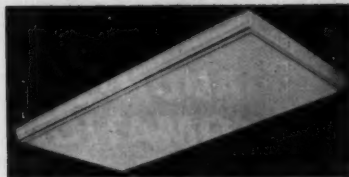
Bolted to Floor

structurally sound. All service piping and wiring is concealed in the structural island, yet easily accessible for maintenance. Table shown is 12 by 4½ ft., by 37 in. high. Other sizes are available from Metalab Equipment Co., Hicksville, N. Y.

(For Further Details Circle Index Code 043)

SLIM CONTOUR LIGHTING

Slenderline is a new shallow-contour, surfaced mounted line of fluorescent lighting fixtures made by Solar Light Mfg. Co., Chicago 22, Ill. The fixtures, only 3¼ in. deep, come in two models: 4 by 1 ft. with two lamps; or 4 by 2 ft. with four or six lamps. There is a choice of diffusers: plastic louver, lens type, and a drop acrylic type that eliminates shadows. The luminaires may be mounted in a continuous row to present an unbroken ribbon of soft light, uninterrupted by straps or extra



Only 3¼ in. Deep

parts. All fixtures are finished in baked-on white enamel. Send for full information.

(For Further Details Circle Index Code 044)

(Continued on page 50)

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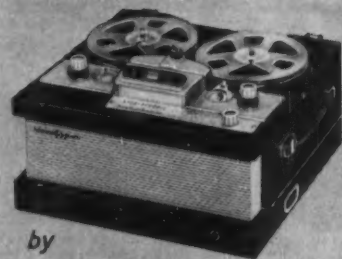
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V-M Also Offers A Complete "Audio Learning Center" Proposal — From One Unit to as Many as Your Language Laboratory Requires.

V-M CORPORATION • Dept. AJ 361
305 Territorial Road/Benton Harbor, Michigan

Please send me additional information without obligation on V-M Tape Recorders and "Audio Learning Center" proposal.

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ROUND READING TABLES

Kenney Brothers, Inc., Winchendon, Mass., an affiliate of Desks of America, Inc., has announced a new line of DK-200 round reading tables. The tables have



In Several Heights

plastic tops available in a wide choice of decorator colors, and in heights from 20 to 30 in. Send for the firm's new color catalog commemorating its 75th anniversary in the school furniture industry.

(For Further Details Circle Index Code 045)

SAFETY SCHOOL BUSES

Four new models comprise the 1961 school bus line by Ward Body Works, Conway, Ark. All four models feature one-piece bow construction with rigid flooring assembly; three heavy-duty crash rails plus a fourth drip rail above the windows for extra stability; stronger seat tubing, and posture-control seats; a new windshield design with swept-back corner posts for driver visibility. Optional equipment are fluted steel side panels, and adjustable driver's seat, and new interior colors.

(For Further Details Circle Index Code 046)

SCIENCE WORK TABLE

The space-saving arrangement of "Clear-view" science table permits both individual work by students and group activities. Because no student directly faces another, there is a minimum of class distraction. Storage space and complete service facilities are provided for each student. Pedestal-



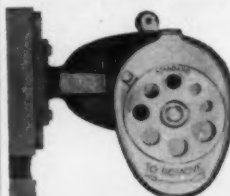
For Four Students

mounted tables without storage cabinets are also available. Over-all dimensions are 48 by 48 by 37 in. high, giving each student a 31½- by 16½-in. work area. Students may work standing or sitting. For more details write to the Laboratory Furniture Co., Inc., Mineola, N. Y.

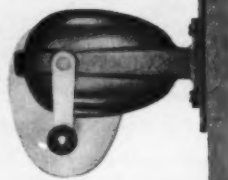
(For Further Details Circle Index Code 047)

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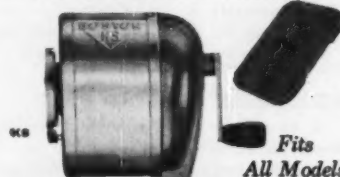
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easy mounting on
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Boston Pencil Sharpeners are made to meet today's high standards for schools. There's a Boston model for every need.

Boston's strong, all-metal construction provides longer service with less maintenance. And all sharpener bases are guaranteed not to break.



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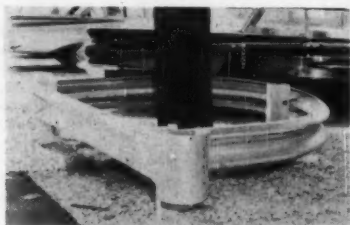
BOSTON

Write today for information and prices.

C. HOWARD HUNT PEN CO. CAMDEN, N. J.

PARKING GUARDRAIL

A new light-gauge guardrail for parking lots is offered by Armco Drainage & Metal Products, Inc., Middletown, Ohio. The Econo-Beam is a deep-beam rail made of low-cost 16-gauge steel, compared to 12-



Light Weight Rail

gauge highway rails. Galvanized on both sides, the guardrail needs no painting for weather protection. It comes in 12½ or 25 ft. lengths, with four instead of eight splice-bolts. A single bolt holds the sections to any timber, concrete or steel post.

(For Further Details Circle Index Code 048)

"FOOD TRAIN"

An electric truck has solved food transport problems at the Arkansas Children's Colony, a school for mentally handicapped children in Little Rock. Made by Cushman Motors, a subsidiary of Outboard Marine Corp., Lincoln, Nebr., the model 734 electric "Truckster" pulls food carts from a



Serves From Central Kitchen

centralized kitchen to the eight cottages where 256 children live. The vehicle does not distract the children because it operates with a silent 36-volt battery-driven motor that runs for 50 miles without recharging. The 1265-lb. truck has a forward speed of 15 m.p.h. and 6 m.p.h. in reverse.

(For Further Details Circle Index Code 049)

AIR-CONDITIONING BOOKLET

"You Can Air-Condition Your New School—and Cut Building Costs," is a new booklet offered by Minneapolis-Honeywell, Minneapolis 8, Minn. The booklet gives case histories of four new schools. In one case, plans for a conventional school without air-conditioning were compared with those for a compact air-conditioned school. Even though both met the same educational requirements, studies showed the air-conditioned school would cost \$50,000 less than the conventional school. Send for a free copy.

(For Further Details Circle Index Code 050)

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*urgencies are
emergencies at*

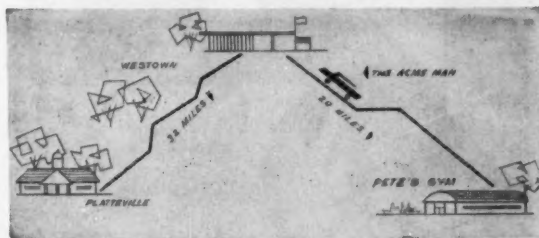
ACME CHEMICAL



"Pete's in a sweat—but not for long. He caught our Acme Man over in Platteville and in no time we'll have the extra Acmelite Pete's crew needs to complete the gym floor job."

"Our Acme Man will have to do some scooting around to find enough Acmelite. But he'll get here so Pete's crew can wind things up by quitting time."

The Acme Man did. In the usual Acme Chemical spirit of treating urgencies as emergencies, he delivered the Acmelite to the waiting crew, after driving 32 miles to the Westown school, then 20 more to Pete's gym. Once again the gym gleams with a tough Acmelite finish. And Pete knows the gleam and the toughness will last through many seasons, that the floor will always be fast playing and easy to maintain. Pete has used Acmelite before.



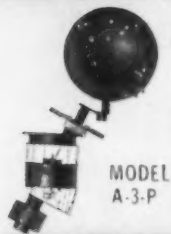
Acmelite, approved by the Maple Flooring Mfrs. Assn. for gymnasium use, is one of 80 fine products made by the Acme Chemical Company. Your Acme Man is ready to tell you more about it.



*Maintenance materials for the School Building . . .
serviced to your satisfaction*



SPACE SCIENCE LABORATORY



*The Spitz Planetarium
enables the teacher to generate
the fundamental understanding of
scientific methods basic to all sciences.*

PLANETARIUM DIVISION • SPITZ LABORATORIES, INC. • YORKLYN, DELAWARE



DESK-LEVEL PROJECTOR TABLE

This new portable projector table enables the teacher to operate an overhead projector while seated. The 16-in. table brings the writing surface of the projector to desk-top level for easy reference to notes.



Desk Height Teaching

The all-steel table, finished in sandalwood enamel, includes an 18- by 24-in. shelf, a top with a thick foam rubber pad, and self-braking casters. Six models of projector tables up to 42 in. high are offered by the H. Wilson Co., Park Forest, Ill.

(For Further Details Circle Index Code 051)

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Code No.	Page No.
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Maintenance materials	
31 Barber-Colman Company	8 & 9
Automatic controls	
32 Berlin Chapman Company.....	46
Dividing wall	
33 Butler Manufacturing Company	
.....2nd cover	
Metal buildings	
34 Encyclopedia Britannica Films, Inc.	43
Programmed learning materials	
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310 Nissen Trampoline Co.....	7
Trampolines	
311 Planetarium Division, Spitz Laboratories	52
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312 Powers Regulator Co.....	4 & 5
Thermostatic controls	
313 Premier Engraving Company.....	52
Engravers	
314 Royal Typewriter Co. Div. Royal McBee Corp.....	4th cover
Typewriters	

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March, 1961

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ADVERTISING INDEX

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NEW PRODUCTS — CATALOGS AND BOOKLETS

041	042	043	044	045	046	047	048	049	050	051
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READER'S SERVICE SECTION

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NEW PRODUCTS

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TO GET UP IN THE AIR

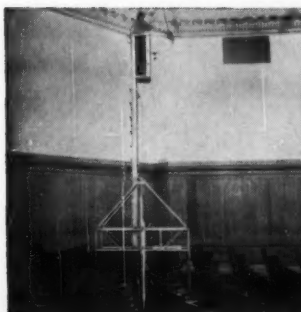
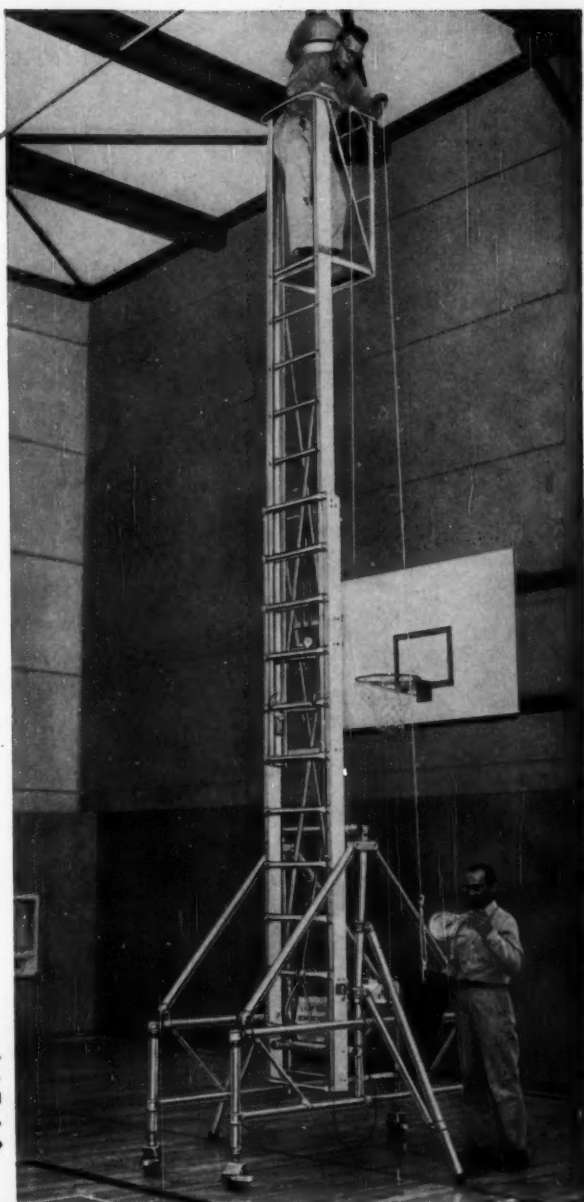
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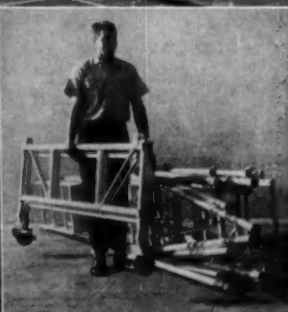
Tallescope speeds up installation and maintenance of overhead lighting, acoustical tile, heating and other facilities at each of 7 junior and senior high schools and colleges in the Stockton, California, Unified School District.



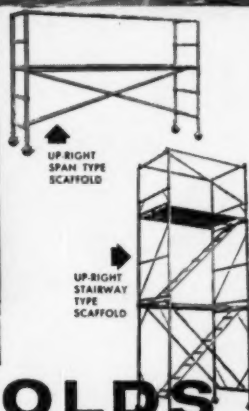
Bridges over auditorium seats. Note one-man operation.



Rolls through doorways. Telescopes and folds down; only 29" wide.



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DEPT. 171, 1013 PARDEE, BERKELEY, CALIF.

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